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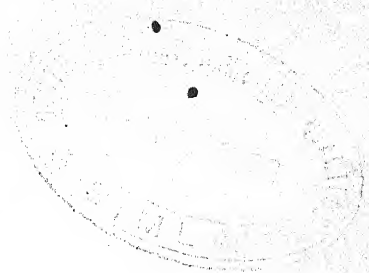
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REPORT

ON

FOREIGN MANŒUVRES.

PREPARED BY THE GENERAL STAFF, WAR OFFICE.

1907.

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NOTE.

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The information given in this Report is not to be communicated, either directly or indirectly, to the Press, or to any person other than those holding official positions in His Majesty's Service.

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MAP.

GERMANY.—IMPERIAL MANŒUVRES To face page 80

INTRODUCTORY NOTE.

A special feature of this year's manœuvres was the greatly extended employment of mechanical transport in the shape of motor cars and cycles and heavy lorries.

The greatest development seems to have been made in France, Italy, Austria, and Switzerland, but the question of the best types of vehicle for transport and supply is still in an experimental stage, and no country has decided on the most suitable patterns.

The majority of the motor cars were lent by private individuals on similar lines to those of our own Army Motor Reserve, and were used by the higher commanders and the umpire and directing staffs.

Although the want of visual and other methods of communication is of course not a new feature, it is striking how unanimous are the comments as to the serious disadvantages under which continental armies labour as compared with our own in this respect.

The maps issued for tactical purposes were, in practically every case, on a scale of 1/100,000 (about 1 inch to 1½ miles). All officers and most non-commissioned officers received a copy. In the German Imperial manœuvres each army corps received 10,000 maps.

The strategical map for the use of the directing staff and certain commanding officers varied in scale from 8 to 12 miles to the inch.

The maps, generally speaking, were printed on paper and folded; it was left to officers to provide themselves with transparent waterproof map-covers for use in wet weather.

Other matters of particular interest mentioned in the report are as follows:—

Austria-Hungary.—Increase of signalling, cavalry recruit training, reserve of horses.

Germany.—Cavalry and artillery telephones, field search-lights, observation ladder, new travelling kitchens.

Sweden and Switzerland.—Methods of indicating targets aimed at.

An index has been added to the report this year to facilitate reference.

GENERAL STAFF.

10th August 1908.



AUSTRIA-HUNGARY.

Part I.—Imperial Manœuvres.

The Imperial manœuvres took place in the neighbourhood of Klagenfurt, in Carinthia, commencing on the 4th and terminating on the 7th September, 1907.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Blue Force.

Commander :—Lieutenant-General Potiorek.

IIIrd Army Corps :—

6th Infantry Division.

28th Infantry Division.

22nd Landwehr Infantry Division.

Corps Troops.

The above units comprised 42 battalions with 3 machine guns, 6½ squadrons, 52 field guns, 16 field howitzers, 8 mountain guns, 2 companies of pioneers, 1 bridging company, 1 telegraph detachment, and 1 balloon detachment. Total strength about 24,000 men.

Red Force.

Commander :—His Imperial and Royal Highness the Archduke Eugen.

XIVth Army Corps :—

3rd Infantry Division.

8th Infantry Division.

44th Landwehr Infantry Division.

Corps Troops.

The above consisted of 42 battalions with 12 machine guns, 9½ squadrons, 36 field guns, 16 field howitzers, 12 mountain guns, 2 companies of engineers, 1 bridging company, 1 telegraph detachment, and 1 balloon detachment. Total strength about 24,000 men.

COUNTRY.

The country round Klagenfurt consists of a succession of hills and deep valleys, some of the latter opening out into small plains. The area is encircled by a distant chain

of mountains. To the west of the town lie those extensive sheets of water, known as lakes Wörth, Ossiach, and Millstät, while about 5 miles to the south the river Drau flows from west to east. Two rapid mountain streams, the Glan and the Gurk flow into the Drau from the north in this vicinity.

The main roads throughout the manoeuvre area are good.

NATURE OF THE OPERATIONS.

General Idea.—A southern army (Blue) is operating against a northern army (Red).

The advanced troops of the southern army, which has moved through Middle and Lower Carniola, have on the 2nd September reached the river Drau and occupied the line Mahrenberg-Warasdin. The main body is on its march northwards to the Drau, the rear of the columns being still on the line of the river Save.

The IIIrd Army Corps is on the left of the Blue advance, its divisions having reached Völkermarkt, Bleiburg, and Krainburg respectively.

The northern army has fallen back to the line of the river Raab between Studenzen and St. Gotthard, but is occupying the crossings of the river Mur between Ehrenhausen and Mura Szerdahely.

The XIVth Army Corps is advancing to co-operate with the main Red army, two divisions from the Tyrol down the Drau valley, and the third division from Upper Austria towards the valley of the Mur.

Special Idea, Blue.—The Blue army is closing up to the Drau with the object of continuing its advance northwards. On receiving information of the advance of the two columns of the XIVth Corps, the Blue commander orders the IIIrd Corps to turn against them and drive them back, so as to prevent their operating against the flank and communications of the Blue army.

Special Idea, Red.—The Red commander intends to assume the offensive on the 4th September. He accordingly orders the XIVth Corps to push forward towards the line Marburg-Gilli with the object of supporting the movement of the main Red army.

NARRATIVE.

The operations commenced on the 3rd September, but the forces did not come into contact until the following day, when there were only a few minor engagements between advanced troops. On the night of the 4th-5th September two divisions of the IIIrd Army Corps made a night march with the object of striking the single Red division coming from

Upper Austria before it could be supported by the two divisions from the Tyrol. On the 5th September these two Blue divisions attacked and drove back in a north-westerly direction the single Red division. As, however, the two Red divisions from the Tyrol were now approaching, the Blue commander left only a small detachment to follow up the defeated Red division and withdrew the bulk of his force to a position south of the hills overlooking St. Veith to await the arrival of his third division. On the 6th September Red attacked Blue's position with the two divisions from the Tyrol. The third Blue division arrived about noon, and the fighting resulted in each force driving in the other's right flank. The Red division from Upper Austria thinking that it was being followed by two whole Blue divisions had retired so far the previous day that it arrived too late to take part in the action. On the night of the 6th-7th September Red entrenched on the scene of the fighting of the 6th; and on the 7th Blue attacked Red on both flanks, holding him in the centre. This attack was facilitated by a dense fog. The "Cease fire" was sounded as the final assault was being delivered.

METHOD OF CONDUCTING THE MANŒUVRES.

The manœuvres were conducted this year upon entirely new lines, the object being to assimilate the conditions as far as possible to those which would obtain on service. After the "declaration of war" the opposing commanders were given an entirely free hand; they could commence operations each day when they liked and could go into bivouac where they liked. The director of manœuvres, instead of issuing orders each night to both forces as was formerly the custom, simply received from each commander a report of his dispositions and a copy of his orders. These were then printed and issued to umpires, official spectators, and others concerned.

This system has, no doubt, many advantages, but in practice the absence of limit as to the hour for the commencement of operations was generally considered to be open to certain objections. As a matter of fact the IIIrd Army Corps appeared to suffer somewhat owing to the extreme energy of their commander, so much so that it is anticipated that special steps will be taken to remedy this defect another year.

There is one other disadvantage of this system which gave rise to a good deal of complaint in the various villages throughout the manœuvre area. In former years it was known beforehand where the several brigades would bivouac, and the village bakers were instructed to have bread in

readiness accordingly. This year orders were issued to the village bakers as formerly, but it frequently happened that the units for which the bread was intended were bivouacked in an entirely different locality, and in the absence of any arrangements for transporting the bread to the units, it was left on the hands of the villagers, who had to subsist on stale bread for days until the extra amount was consumed.

REMARKS.

Infantry.—The idea that the troops were being overexerted was certainly borne out by the slowness and deliberation of the movements of the infantry, which gave a very unreal appearance to the manoeuvres.

During the attack the infantry made good use of such cover as was afforded by features of the ground.

One regiment of the *Landesschiitzen* (Landwehr Rifles) took part in the manoeuvres. The men were wearing their new uniform consisting of a grey tunic and knickerbockers, with grey woollen stockings. The facings (collars, shoulderstraps, and cuffs) are green. The regimental badge, the edelweiss, which is worn on the collar, is made of dull metal, as are also the buttons and badges of rank. The head-dress is a service cap with a black cock's feather on the left side. A long *Jaeger* cape, reaching down to the knees, takes the place of the great-coat, and all ranks carry an Alpenstock. The officers have a special short sword: mounted officers wear gaiters. The men have only one order of dress.

Cavalry.—Only two cavalry regiments, of six squadrons each, and three squadrons of *Berittene Landesschiitzen* (Landwehr Mounted Rifles) took part in the manoeuvres, and their action was therefore limited to patrolling and mounted orderly duties. Dismounted action was not employed by this arm.

Artillery.—Owing to the nature of the ground the artillery was more split up than usual. On one occasion a single section was seen acting independently. When, however, the ground allowed of it, the guns were massed.

Concealed positions were made use of much more frequently than in former years. The howitzer batteries adopted positions of this nature almost exclusively, which is quite a new departure in the Austrian army.

The horses of the howitzer batteries did not appear to be up to their work; the howitzers were often to be seen sticking in the heavy ground.

Two batteries of experimental "narrow track" mountain howitzers took part in the manoeuvres. The howitzer is the same as that in a field battery, but it is mounted on a special

low travelling carriage, the wheels of which are 32 inches high and have a track of 36 inches. To come into action the howitzer is transferred to a firing carriage, similar to that of a field howitzer, but of narrower track.

The carriages are so constructed that when moving in snow or over rocky ground the wheels can be removed and sleighs substituted.

On the march the gun carriage is attached to a limber, but when advancing into action the horses, two in number, harnessed tandem fashion, are attached directly to the gun carriage, the shafts being detached from the limber with the wheeler.

The ammunition wagons have only one horse. The ammunition is carried in four boxes, one on the top of the other, each box containing three shells. These, together with one extra box which is carried strapped on to the gun carriage, contain in all fifteen rounds per gun.

The equipment appeared to be a decided improvement on that formerly in use, the carriages of which were too high and apt to turn over in consequence; it is understood that the authorities were well satisfied with the trial, and that the equipment is to be adopted for the Tyrol and ultimately for Bosnia-Herzegovina also.

Telegraphs and telephones.—Only telephones were used, partly for the sake of experiment, and partly owing to the greater expense of telegraph stores, since much of the existing matériel belongs to the mobilization equipment, and may not be used.

It was necessary for the directing staff to be always in touch with the principal commanders. This involved the linking up of eight constantly moving points, a problem which was solved by the formation of a specially organized section consisting of a number of groups, each having a telephone station and several miles of line.

Besides these, each corps commander and each recording staff officer was provided with a cavalry telegraphist, who carried a telephone and some wire, and could rapidly connect up to the nearest existing station.

A useful innovation was the employment of a special staff officer in charge of the whole service of communications of the directing staff. He had control over the telephone detachment, the orderlies, both mounted and motor, and the government and railway telegraphs and telephones.

Each army corps had a detachment with 36 miles of line, to link the corps commander to his divisions. This was supplied by the corps telegraph unit.

Divisional telephones were worked by the infantry telegraph detachments, furnishing three stations with 18 miles of wire for the interior service of the division.

Regimental units also had telephones. Infantry utilized the equipment provided for use on their rifle ranges; the number of instruments was found to be insufficient, but better things are promised next year.

Cavalry regiments were supplied with two instruments and 9 miles of wire, carried by 8 men of the regimental telegraph unit.

The artillery used various experimental telephone detachments, some mounted, some dismounted.

Wireless telegraphy.—Great improvements have been made in the wireless telegraphy apparatus, notably the introduction of a portable iron mast, for the support of the "antennae." Formerly balloons and kites had to be relied on for this purpose, and the use of the instrument depended, in consequence, on the state of the weather.

The mast in question is light and simple in construction, and can be erected, or dismantled, in two hours; it takes to pieces easily, and yet when set up is strong enough to stand any wind; it measures some 165 feet in height. A pole 66 feet long is carried, for use as a derrick to raise or lower the mast.

The equipment consists of two boxes, containing the apparatus, and a motor, connected to a reversible dynamo.

Each corps commander was provided with a wireless telegraphy apparatus; it was employed to connect the columns during the advance.

It is recognized that wireless telegraphy cannot take the place of the field telegraph, though it may serve as an extremely useful adjunct to it.

Signalling.—Signallers were extensively made use of during the manoeuvres. The signalling flag is considerably larger than that in use in the British army.

Four signalling units were attached to the directing staff, each provided with a heliograph and a limelight apparatus capable of being used by night or by day for considerable distances.

Telephone detachments are equipped with lamps and flags.

Infantry telegraph units have three sets of signalling equipment, and can signal by heliograph or acetylene lamp up to a distance of 30 miles in fine weather.

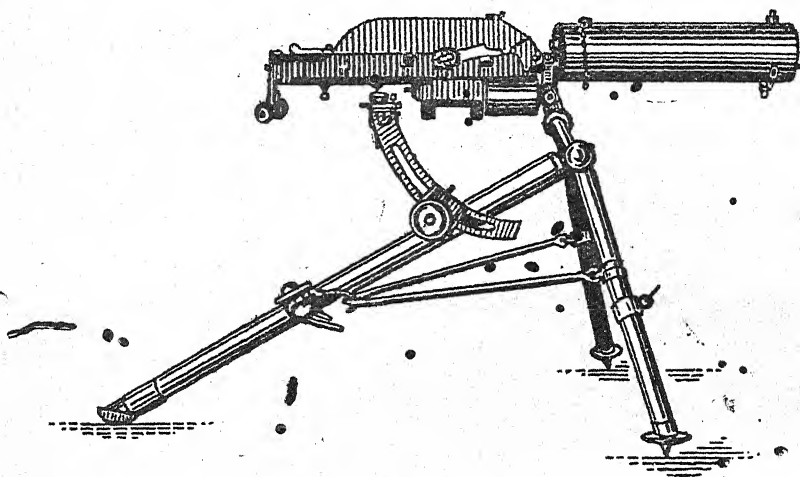
New signal instructions based on the Morse system have recently been issued, and experiments are being made with new types of lanterns, both oil and acetylene. Petroleum is found to give the best light, especially in foggy weather, and is easier to procure than calcium carbide.

Both lamp and flag signalling have been introduced for the infantry, and their use is being encouraged as much as possible.

Balloons.—Balloons were made use of during the operations, both by the opposing forces for reconnaissance and by the directing staff for signalling purposes.

A balloon detachment, with one *Drachen* and one spherical balloon, accompanied each army corps. A specially trained general staff officer was attached as observing officer to each balloon detachment. The car of the balloon was in telephonic communication with the ground.

Machine Guns.—The new "Schwarzlose" machine gun was seen in use at the manœuvres for the first time. This gun has been recently adopted after exhaustive comparative trials with those of the Maxim and Skoda patterns.



It is mounted on a tripod with telescopic legs, as shown in the above diagram. The weight of the gun and tripod is stated to be 77 lbs. It is claimed that the gun possesses great advantages from the point of view of simplicity, only one spring being used in its construction, as compared with fourteen in the Maxim gun.

Each machine gun detachment consists of 8 men and 11 horses. One non-commissioned officer and 4 men (all mounted) work the gun and in addition three mounted men lead pack horses, two of which carry ammunition and the third the gun and tripod. The ammunition is the same as that for the service rifle.

Transport.—The carts of the country were generally utilized for supply and transport columns.

Motor transport was employed on an unprecedented scale, the whole supply of the XIVth Corps being effected by this means. A motor volunteer corps was also present, officers of the reserve being employed as chauffeurs and motor cyclists,

while gentlemen owning motors were attached to the higher staffs for orderly work.

For supply work, the motor transport was organized in sections. The following vehicles were employed :—

- (a) Two heavy locomotive trains, consisting of 1 engine, 5 trucks, and a tender; net load 25 tons per train.
- (b) Four benzine motor trains, of 1 motor vehicle and 2 trucks each; net load 6 to 8 tons.
- (c) Five heavy benzine motor-lorries; net load 2 to 5 tons.
- (d) One light benzine motor-lorry (net load 1 ton), carrying fuel, &c., for the motor vehicles, with each section.
- (e) Eight motor cycles with trailers for orderly work.

A repairing wagon was attached to the motor transport, capable of effecting any repairs necessary and carrying a dynamo and electric light apparatus for night work.

Depôts for benzine were established at various points, and special instructions were issued that opportunities should be afforded for the periodical cleaning and overhauling of all motor vehicles.

The policy of the army authorities appears to be to avoid the purchase of special mechanical transport vehicles in peace time, but on mobilization to requisition all that may be in the country and to use them for army purposes.

One great obstacle to the employment of mechanical transport is the miserable type of wooden bridge met with in some parts of Austria; indeed no little difficulty was experienced during the recent manœuvres owing to this very reason.

Bivouacs.—The troops bivouacked throughout the manœuvres, utilizing the *tentes d'abri* which they carry with them.

General remarks.—At the conclusion of the manœuvres, when the Emperor was inspecting the troops, it was observed that the men looked "done up"; and that their boots were all out of shape.

There were various stories told of men having died of fatigue, but this was an exaggeration. There is no doubt, however, that the men were both overworked and underfed throughout the manœuvres.

AUSTRIA-HUNGARY.

Part II.—Cavalry Manœuvres.

(And some Remarks on Cavalry Training, &c.)

These manœuvres took place in Galicia between the 5th and 18th September.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Blue Force.

Commander:—Major-General Carl Tersztyansky von Nadas.

Lemberg Cavalry Division.

18th Cavalry Brigade (9th Dragoons and 13th Lancers).

21st Cavalry Brigade (1st Lancers and 4th Lancers).

1st Horse Artillery Battery.

Red Force.

Commander:—Lieutenant-General Kotossvary de Kolosvar.

Stanislau Cavalry Division.

13th Cavalry Brigade (14th Dragoons and 10th Hussars).

15th Cavalry Brigade (2nd Dragoons and 8th Lancers).

2nd Horse Artillery Battery.

COUNTRY.

The theatre of operations consisted of an area of upwards of 2,000 square miles (61½ by 31 miles) in the angle formed by the junction of the river Sereth with the Dniester. The country generally is open and slightly undulating. It is all cultivated and there are scarcely any woods. The roads are not metalled.

NATURE OF THE OPERATIONS.

The first three days (5th to 7th September) were devoted to reconnaissance, one Division operating against the other; the next three to tactical exercises, combined with brigade drill (9th and 12th September), and divisional drill (13th September). On the 14th September divisional operations were carried out, and an inspection by the army corps commander and the inspector-general of cavalry. The 16th and 18th September were again devoted to divisional drill and tactical exercises.

METHOD OF CONDUCTING THE MANŒUVRES.

The manœuvres were directed by General Count Auersperg, commanding the XIth Army Corps, to which both the cavalry divisions engaged are attached. Lieutenant-general von Brudermann, the inspector-general of cavalry, was also present one day and held the criticism of work on that date.

The tactical exercises were in some cases carried out against a flagged enemy, one non-commissioned officer with a flag and four men without flags representing a squadron.

REMARKS.

Officers.—The officers as a rule seemed keen and capable, and the standard of professional education is distinctly high. Three years are passed at the military school as cadets; then, after a year in the regiment, six months are passed at the brigade school, where tactics, military history, and some foreign language are taught in addition to a tolerably severe course of equitation.

After this the young officers rejoin their regiments for a year, and then go through a second course of six months at the brigade school, very similar to the first.

Those who pass out of the brigade school with credit are sent, after four years' service, to the cavalry school, where they remain two years and are put through a most severe course of equitation which entails riding eight or nine different horses a day, four being remounts. The work is so hard that some are unable to stand the strain.

In addition, all officers must undergo an eight months' course at the corps school before being eligible for promotion to the rank of captain, and even then there is little chance of advancement unless the Staff College is passed.

The chief amusement of officers stationed in Galicia, where four out of six cavalry divisions are quartered, is training young horses; this is at the same time a source of profit.

It would be considered very "bad form" for any officer to ride on parade a horse which he had not broken in himself.

Men.—The dragoons are recruited from Austria, the lancers from Galicia, and the hussars from Hungary.

The hussars appear to be the best, being born horsemen and probably better fighters than either the dragoons or lancers.

A great many men are quite illiterate. Though words of command are always given in German, the hussars can only speak and understand Hungarian, and the majority of the Galicians, Polish.

An examination must be passed before promotion to the rank of corporal, but, after that, promotion is by selection.

Discipline.—The standard of discipline is high, but the men appeared to take little or no interest in their work; the entire lack of excitement or eagerness when brigades or divisions were about to charge, or were engaged in a charge, was very noticeable, and formed a contrast to what is seen with our own men under similar conditions.

It may be mentioned that on one occasion a corporal who brought in wrong information, *i.e.*, reported a regiment of his own side to be a hostile regiment, was awarded 14 days' imprisonment on the spot by the general himself.

Instruction of recruits in riding.—The firm easy seat, good hands, and high standard of horsemanship in the ranks of the Austrian cavalry are so noticeable that the details of the system of instructing recruits are worthy of consideration.

The idea is rather prevalent that all Austrians are born horsemen, but this is contrary to fact. It is true that a large proportion of the Hungarians are natural horsemen, but this would not affect the regiments of lancers and dragoons, which are recruited in Galicia and Austria respectively. The system is as follows:—

1st Period. The recruit is allowed a saddle but no reins, the object being to teach the man to balance himself perfectly, without hanging on to his horse's head. He may at first hold on with his hands to any parts of the saddle. Three or four recruits form a class. A trained soldier holds a long rein and controls the horse, and a corporal acts as instructor.

No mounted lesson lasts more than half an hour; the intervals are employed in teaching the recruit to mount and dismount, and in extension exercises, &c. This period lasts about ten weeks.

2nd Period. The recruit is taught how to hold his reins, but only the bridoon is used. The "aids" are then taught, and as soon as the instructor is satisfied that the pupil has acquired a good and correct seat, bending lessons and jumping over a low bar are practised.

3rd Period. The horses are bitted, and the recruit is taught to ride with the left hand only, and to use his sword.

It appears probable that the secret of the standard of riding being so high in the Austrian cavalry lies in the fact that no recruit is allowed to touch the reins until he has completely gained his balance without their help.

Drill.—The points which strike a British cavalry officer favourably in connection with the drill are the good riding of the men, the entire absence of noise or confusion in the ranks, and the good balance and training of the horses.

In these particulars the Austrian cavalry is very good; there is, however, little to learn from them as regards drill itself, or, what all drill leads up to, *i.e.*, the attack.

The pace is slow, no manœuvres being carried out at a rate exceeding eleven, or at most twelve, miles an hour. •

The deployment into line of squadron columns preparatory to attack is not looked upon with any favour. The normal preparatory formation for a brigade is each regiment in column of troops, with about 10 yards interval between columns. Time after time these columns were caught in the process of forming line; in fact, it was the exception to see the line formed before the shock would have taken place.

Whistles are carried but seldom used. When the general officer commanding the division or the brigadier is about to give an order, he holds his sword above his head. The next senior officers raise theirs to show they have seen the signal, and do not lower them until the order has been given and understood.

All gallopers wear an orderly officer's sash and are thus easily recognised as such.

Tactics.—The two divisional commanders were officers of almost opposite types, but notwithstanding the marked difference in their characteristics, the tactics they pursued were practically identical. This points to the fact that a certain system has been laid down for cavalry combats in the Austrian service which will not be departed from in war, no matter who may be in command.

There was no attempt at concealment, though the undulating country lent itself admirably to movements which would, if successful, effect a surprise.

A change of direction was never taken into consideration, and quite rightly too, as no manœuvring to gain a flank or to get the advantage of better ground ever seemed to be thought of. The divisional or brigade commander gave his orders for the attack when his enemy first came into sight, and so far as could be seen those orders never needed alteration, as the opposing forces always marched straight at one another. Having once issued his orders, the commander washed his hands of the affair, and he and his staff rode about as spectators.

One regiment was nominally told off as a reserve, but it was never more than 300 yards in rear and was always involved in the mêlée within a minute or two of the main attack being delivered, and that without any definite orders.

The "cavalry spirit" was rampant. Cold steel was relied on absolutely, and though the men carry carbines slung on their backs, they never used them, no matter how favourable the opportunity.

Reconnaissance.—Long distance reconnaissance was well carried out, and appeared to be conducted on much the same principles as our own, i.e., by means of officers' patrols. One

patrol, consisting of an officer and twelve men, covered a distance of 84 miles in 28 hours. The men of the lancer regiments, who are Galicians, have a natural gift for finding their way about a country and rarely get lost.

Communication.—The only method of communication from the front which is considered really reliable is the mounted orderly. The message is usually carried in the side of the boot, sometimes in the sock.

Signalling.—Signalling is much neglected in the cavalry. There are only two heliographs and two lamps in a division, and neither these nor the ten flags which are allowed to each regiment were ever used throughout the manoeuvres.

There is a school of signalling near Vienna, and there is usually one officer in each regiment who has been through a course there.

Field Telegraph.—The telegraph communication of an army corps is worked by a telegraph battalion, which keeps up communication with army and other headquarters. It carries 27 miles of wire. Each regiment has a telegraph section, carrying $8\frac{1}{2}$ miles of wire, which keeps the unit in communication with any detached posts and with its brigade or divisional headquarters in rear. Four non-commissioned officers and four men in each regiment are trained annually in telegraphic work.

Horse Artillery.—The gun is not worth notice, as it is an obsolete weapon and a new one is in process of manufacture. Only one battery appeared with each division, though the war establishment provides for one to each brigade.

The battery commander was always told where to come into action, which was as a rule much closer to the point of contact than we should consider wise. The battery was, in fact, as often captured as not. No attempt appeared to be made to send the artillery off to a flank. The escort to the guns was quite inadequate considering the dangerous position they usually occupied, and it always remained mounted. Great importance was attached to the first shot fired by the guns, and consequently directly a gun was in position it fired, quite regardless of laying.

The horses were of too light a type to draw the guns through heavy ground. They moved quickly, but were tired out after one or two changes of position.

Engineers.—There were no field troops of engineers at the manoeuvres, but each regiment has a pioneer troop, every man in which carries a tool of some kind, and also explosives. These troops were usually detailed as escort to the guns.

Medical.—One medical officer is attached to divisional headquarters and three, two of whom belong to the reserve, to each regiment. Each medical officer carries a very neat

and compact medical case of new design, and is provided with an orderly who carries two medical panniers on his horse.

Each squadron has a medical non-commissioned officer and two stretcher bearers with one stretcher, and there are three medical pack horses per regiment. One metal leg splint per regiment is carried, on a man's back.

Each battery has one medical officer, one assistant, four stretcher bearers, and two stretchers.

Each division has four ambulances which carry four lying down, and six sitting cases.

"Tying on" labels are carried by all medical officers, red for severe, and white for slight cases.

Horses.—The horses are well bred, active, clean-limbed, level in appearance, about 15·2 hands high, and very docile. They are supplied to a great extent from the six government stud farms, but many are bought in Hungary. They are exceedingly well cared for, and looked in first rate condition, but those seen were never asked to do more than what we should consider half a day's work on manœuvres, and were always stabled at night.

Training of remounts.—This is carried out very thoroughly, and with good results. The Austrian remount is a better shaped horse as a rule than ours, has better shoulders, and is therefore more easily balanced. The officers are thoroughly qualified, by the severe and prolonged courses of equitation they have passed through, to train horses, and having very few amusements and very little in the shape of sport to distract their attention, they both can and do devote practically all their time, when not on parade, to the education of their young horses.

Reserve of trained horses.—The Austrian method of providing a reserve of trained horses for their cavalry is worthy of consideration.

Each regiment has fifty more remounts every year than are necessary to supply the ordinary wastage, or, in other words, has fifty horses over its establishment.

Fifty horses are selected from among the previous year's remounts, when they are five years old, and have been passed as fit to take their places in the ranks, and are distributed to small landowners and approved farmers in the neighbourhood. These horses can be used for any legitimate purposes which their temporary owners may choose, but must be returned for a month each summer, in order that they may be put through a course which will keep them up to the standard of a trained horse.

After six years the horse becomes the absolute property of the man in whose charge it has been.

The advantages of this system are obvious. Allowing a liberal margin for casualties, an Austrian cavalry regiment on mobilization can, in a comparatively few hours, collect at least 200 well-trained horses in good condition, between the ages of 6 and 11.

These horses have cost the country :—

	£
(a) Their original purchase price (say)	40
(b) Forage, &c., for 1 year during training (say)	25
(c) Keep, &c., while up for annual trainings (say)	5
Total	£70

This may at first glance seem a high price, because it is 20*l.* or so more than would probably be paid for horses bought on mobilization to fill up our ranks, but when considering the difference between 50*l.* and 70*l.* it must be taken into account that the smaller sum buys an untrained horse, and the larger provides a properly trained animal, and that it is quite possible that the accurate or non-accurate drill of a brigade may make the difference between winning or losing a cavalry battle.

Transport.—The government wagon in use in Galicia weighs 1,570 and will carry 3,379 lbs. The body is built very low and the sides slant outwards. Each squadron has five such wagons, but they are kept in the mobilization stores, and transport is hired for manœuvre purposes. It may be mentioned that transport is very plentiful and cheap in Galicia as the head of practically every peasant family owns a wagon and at least two hardy little ponies.

Rations.—The rations consist of $\frac{1}{2}$ pint of coffee or soup at 5 or 6 a.m., a soup, meat and vegetable meal at noon, and $\frac{1}{2}$ pint of coffee or soup at 6 p.m.

Bread is issued every five days, at the rate of one pound per man per diem.

An emergency ration is carried. It consists of coffee with sugar, a tin of mixed meat food, and a kind of oatmeal flour which makes an excellent porridge.

Arms.—The sword is a badly balanced and rather clumsy weapon, slightly curved, and suitable only for cutting. It is carried on the man.

The carbine (Mannlicher) carries five cartridges, and is shorter in the barrel even than our old cavalry carbine. It is carried slung on the man's back, and held firmly in position by a strap from the small of the butt to the waist belt.

Equipment.—The saddle is heavy and looks clumsy. It weighs 22 pounds, and if it were not for the very thick blanket worn underneath, and the steady, firm seat of the man, there would be a great number of sore backs. Every saddle is marked on the back arch with the name of the horse to which it belongs.

A particularly good form of leather head rope, with spring hook, is fitted to a "D" on the left front of the saddle.

Oats are carried in a long sack on the back of the saddle, and a canvas feeding bag in the wallets.

The bit is very like a rather heavy "Pelham" and there is also a bridoon.

In addition to the mess tin, one tin cooking can is carried for every two men. Axes are taken in the proportion of two to every seven men, and each man carries 12 to 14 feet of coiled rope, to enable him to haul forage, fuel, &c.

The officers carry a most excellent and useful leather despatch bag, about seven inches square, in which fit their notebooks, sketch-books and maps.

C H I N A.

Owing to lack of funds there were no grand manœuvres in China during 1907, each division arranging its own local manœuvres, but the 1st (Manchu) Division happened to be marching from Pao-ting Fu to Peking, and a part of the 6th Division was sent to meet it for the purpose of carrying out combined operations.

These took place on the 1st, 2nd, and 3rd November at Cho Chou, a town on the Pei-Han railway, about 35 miles south-west of Peking.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Neither the 1st nor the 6th Division was up to strength, the total number of men engaged on both sides being under 7,000.

These were divided into a Northern force, dressed in khaki, and a Southern force, dressed in blue, their composition being:—

Northern Force.

Commander.—Brigadier-General Li Ch'un, 11th Brigade.

Infantry.—6 battalions.

Cavalry.—2 squadrons.

Artillery.—3 field batteries, (12—75-mm. Schneider-Canet 1904 Q.F. field guns).

3 mountain batteries (12 guns).

Engineers.—2 companies (imaginary, represented by infantry).

Transport Details.

Southern Force.

Commander.—Brigadier-General Chou Fu-lin, 1st Brigade.

Infantry.—6 battalions.

Cavalry.—2 squadrons.

Artillery.—3 field batteries (18—75-mm. Japanese, Arisaka, field guns).

3 field batteries (18—57-mm. Krupp, Grüssen, 1895 field guns).

3 mountain batteries (18—57-mm. Krupp, Grüssen, 1904 mountain guns).

Engineers.—1 battalion (imaginary, represented by infantry).

Medical.—1 company, Sanitary Corps.

Transport Details.

COUNTRY.

The operations, which were on a very small scale, were carried out on the plain near Cho Chou, the area covered in any one day's manoeuvres never exceeding 12 square miles. The ground was flat, intersected by sunken roads, sometimes as much as 20 feet deep. Trees are only found near the villages, which everywhere dotted the plain. The whole ground was cultivated; in one portion irrigation channels gave it a tendency to be swampy, but as a rule the soil was sandy. A river, 70 yards wide and 3 feet deep, crossed the ground on which the second day's manoeuvres were carried out.

NATURE OF THE OPERATIONS.

The scheme varied little day by day. The operations commenced with a cavalry charge; the artillery on each side then took up a position from which an artillery duel was carried on for some time. On the conclusion of this duel the infantry on both sides advanced, and the whole terminated with a bayonet charge, the troops halting when about 50 yards apart.

METHOD OF CONDUCTING THE OPERATIONS.

The operations were under the direction of General Fêng Shan, commanding the 1st Division. Orders in Chinese were issued daily, but as no translation could be obtained it was impossible to ascertain their scope.

Although there were numerous umpires, they appeared to be but little used. Throughout the operations the idea of producing spectacular effect seems to have been predominant. The troops were free to move anywhere, and the spectators were compelled to keep at a distance.

REMARKS.

Tactics.—Each day the situation was settled beforehand, and little or no use was made of cavalry for purposes of reconnaissance.

Artillery was much exposed, and exhausted its ammunition in the artillery duel, leaving the enemy's infantry almost unmolested.

Fire was opened at long ranges, both by artillery and infantry. The formations of the latter were dense, the attack starting with the firing line and supports deployed at from two to three paces interval, and the firing line was reinforced during the advance until the men were shoulder to shoulder. The advance was made by rushes of from 50 to 100 yards.

usually by companies, although sometimes a whole battalion would advance in line. Very little use was made of cover. The infantry attack always involved a simultaneous advance on both sides.

Entrenchments were seldom dug, but even when entrenched the defenders would leave their works and advance to meet their opponents while these were still 800 yards distant. The intention was doubtless that of an active defence.

The operations showed that the Chinese attach much importance to precision of movement in the field. This may be attributed to the influence of their training by the Japanese, who have deduced from the war in Manchuria the lesson that there are moments in the stress of battle which demand that, in order to secure success, a very strict spirit of discipline should be inculcated during peace time.

The attacks were almost invariably frontal. This may have been due partly to the fact that the successful timing of a flank attack might make heavier demands upon the staff than they are yet capable of meeting. The Japanese, and presumably therefore the Chinese, system when engaging an enemy, is to deal him such a blow as to shatter him both morally and physically. No faith is placed in such generally futile methods as merely out-manceuvring the enemy.

Infantry.—The men were usually in marching order, each man carrying a goatskin or brown canvas knapsack, and some form of entrenching tool, either a small spade, a small pick, or an axe. Many of the men were young and not of good physique, but they marched well and showed no leg weariness. Absolute silence was preserved on all occasions. No attempt was made to practise ammunition supply.

Cavalry.—The cavalry was few in number, and mounted on ponies. The men as a rule rode well, and the ponies, though small, are hardy.

Artillery.—The artillery was drawn by ponies, which at the end of the operations showed signs of hard work. Arrangements for fire control and for ranging were primitive. Very little attempt was made at concealment. Ammunition supply was not practised at all. There were no spare horses or men. Generally speaking, the batteries were under-equipped, under-horsed, and under-manned.

Engineers.—No engineers took part in the operations. The one company which was present was employed at the railway station.

Transport.—The quantity of baggage appeared to be somewhat excessive, but the transport was conducted in a most orderly manner; there was no shouting or noise, nor were the roads ever blocked.

Telephone.—On each side there was a cavalry and an artillery field telephone section, which did effective work.

Sanitary Corps.—A company of the newly-formed Sanitary Corps took part for the first time in manœuvres. Of the men of the company, half looked after the sick and carried stretchers, and the other half were attached to the transport and cleaned up the camps.

Camps.—The troops were supplied with tents, the men with single-fly bell tents and the officers with a large Indian pattern. The camps were very orderly and clean.

Maps.—Officers were supplied with Chinese maps.

Generally speaking, the standard of the manœuvres was not up to that of former years. Hitherto the Japanese instructors have been credited with drawing up the scheme, but this year it was the work of the Chinese themselves. There were no conferences or explanations.

The troops being in standing camps near the railway the question of supply did not affect the operations.

The men exhibited the greatest keenness throughout the manœuvres and showed signs of excellent discipline, but were lacking in initiative.

FRANCE.

Part I.—XIIth and XVIIIth Army Corps.

These manœuvres took place in the south-west of France from the 9th to the 14th September. The first two days' operations were between the Divisions of the XIIth Army Corps in the neighbourhood of Angoulême and Nontron; whilst from the 12th to 14th September the XIIth Army Corps operated between Angoulême and Périgueux against the XVIIIth Army Corps, reinforced by a brigade of colonial infantry.

STRENGTH AND COMPOSITION OF THE FORCES.

The director of the manœuvres was General Millet. The troops engaged were as follows:—

XIIth ARMY CORPS.—General Altmayer.

23rd Infantry Division—General M. Gallievier de Mierry:—
45th and 46th Infantry Brigades, two brigades (6 batteries) of field artillery, and one company of engineers.

24th Infantry Division—General Amourel:—
47th and 48th Infantry Brigades, two brigades (6 batteries) of field artillery, and one company of engineers.

Non-Divisioned troops:—

12th Cavalry Brigade, one brigade (3 batteries) of field artillery, one brigade (2 batteries) of horse artillery, and one company of engineers.

XVIIIth ARMY CORPS.—General Oudard.

35th Infantry Division—General Frater:—
69th and 70th Infantry Brigades, two brigades (6 batteries) of field artillery, and one company of engineers.

36th Infantry Division—General Penaud:—
71st and 72nd Infantry Brigades, two brigades (6 batteries) of field artillery, and one company of engineers.

Non-Divisioned troops:—

18th Cavalry Brigade, one brigade (3 batteries) of field artillery, one brigade (2 batteries) of horse artillery, one company of engineers, and one brigade of Colonial Infantry.

Approximate Strength of Units.

XIIth Army Corps:—		All Ranks.
Army Corps Staff	- - -	200
Two Divisional Staffs	- - -	200
Four brigades of infantry, each of one staff and 2 regiments of 3 battalions of 4 companies:—		
$4 \times (13 + (2 \times 3 \times 4 \times 130))$	-	12,532
Divisional artillery: 4 brigades each of 3 batteries.		1,440
Three engineer companies (128 each)	-	384
Two divisional squadrons (110 each)	-	220
Cavalry brigade	-	900
Corps artillery: 1 brigade at 360 and 1 brigade at 240.		600
Total		16,476
XVIIIth Army Corps same as above	-	16,476
Colonial Brigade	-	2,173
Grand Total		35,125

No official return of strength was issued, but the units were weak owing to the recent dismissal of the 1903 contingent, to the fact that this year the reservists were called up for training in small batches all through the summer instead of in two large contingents of which one came in for the manœuvres, and also to the drafting of a large number of individual soldiers from the western to the eastern frontier.

COUNTRY.

The ground on the first two days resembled parts of Surrey, being greatly intersected by hedges, hollow lanes and woods, and having in addition numerous fields of vines and Jerusalem artichokes, which afforded good cover for infantry but put cavalry and artillery at a great disadvantage. The last three days afforded better manœuvre ground, less intersected, with commanding, but often rather steep, artillery positions, and with strong positions overlooking wide valleys. The roads, except for one or two main ones, were mostly of the second order, chalky and dusty, but water was fairly plentiful, and in many parts of the manœuvre area the numerous villages made it easy to find the way and to billet troops.

NATURE OF THE OPERATIONS.

On the 9th and 10th September the XIIth Army Corps with attached troops was divided into two opposing forces, one of which consisted of a division, a regiment of cavalry and a brigade of horse artillery, and the other of a Division, a regiment of cavalry and a brigade of field artillery. Each force was supposed to be covering the concentration of an army corps, and was ordered to locate and act offensively against the enemy.

On the 9th September the special ideas were such as to limit both forces to a straightforward attack, and on the 10th one force was instructed to attack vigorously and the other to manoeuvre and, if necessary, take up a defensive position.

The 11th September was a day of rest.

On the 12th, 13th and 14th each force (for composition see page 28) was supposed to be covering an important town (Angoulême and Périgueux respectively) placed in a state of defence and occupied by an imaginary garrison. The direction in which the enemy was reported to be was indicated to each commander and he was instructed to act offensively.

The operations on the 12th were limited almost entirely to marches, but it was a heavy day for infantry, some regiments being on the march from 1.40 a.m. to 10.30 a.m., and from 12 noon to 4 p.m. The opposing cavalry brigades met but did not become seriously involved.

On the 13th the Director of the manoeuvres had given private instructions to the commanders not to push on far, partly on account of the hard day on the 12th, but principally because to have done so would have left nothing to do on the following day. Hence it was almost a blank day as regards fighting but the two forces advanced to within close striking distance of each other.

On the last day (the 14th) one force took up a defensive position and the other attacked it.

METHOD OF CONDUCTING THE MANOEUVRES.

There was a standing order that hostilities were always to be suspended at 10.30 a.m. and resumed at noon, as a matter of fact no operations were ever carried out after this halt, but on one day they were continued without interruption till 11.30 when they finally ceased, and on another occasion the "Cease fire" sounded as early as 9.30 a.m. At noon the troops marched to their billets under peace conditions, but outposts were put out at 6 p.m., although there were no night operations.

Under these conditions the manoeuvres developed to a certain extent into a series of field days, the difficulties of

writing and circulating orders were almost eliminated, the troops received their rations with the same certainty that they would in barracks, and in many ways the manœuvres were not a very severe test of the stamina of the troops or of the power of the men and horses to stand the wear and tear of war.

To most of the officers who attended these manœuvres the impression was given that, compared to our own manœuvres, the men were being somewhat carefully nursed, and one officer points out that if this was done, as was generally supposed, for political reasons, it would appear to tend to disprove the contention sometimes put forward that with compulsory service men can be worked much harder than with voluntary service.

The practice of suspending operations for $1\frac{1}{2}$ hours at 10.30 a.m. appeared to have a certain effect on the tactics; commanders sometimes seemed inclined to put their reserves into the fight, not because the right moment had arrived, but because 10.30 a.m. was approaching.

Umpiring.—On the subject of umpiring our Military Attaché in Paris reports as follows:—

"As usual British officers present frequently remarked on the paucity and inaction of the umpires. Half-a-dozen generals and a few colonels formed the whole umpire staff. While this system has the obvious disadvantage of allowing unreal situations to occur and of not always permitting the Director of manœuvres to ascertain all the facts, it has perhaps the compensating advantage of leaving the action of senior commanders uncramped, and of juniors not being covered by a second (and perhaps a third and fourth) commanding officer in the shape of a young and enthusiastic field-officer, charged with the duties of assistant umpire, and anxious to display his knowledge and power.

"But no doubt the British and French systems are each best suited to the national characteristics; to apply the British system in France would be to invite acts of indiscipline."

It is believed that at some of the smaller manœuvres this year the number of umpires was considerably increased as an experiment.

Schemes.—The schemes set were the essence of simplicity. Commanders were left a perfectly free hand and there was nothing of a pre-arranged character except on the last day but one, when the instructions were to manœuvre and not to engage seriously.

Press.—Members of the Press were, as at last year's manœuvres, given a short account of the day's operations.

as they terminated, by an officer of the directing staff; he did not fail to impress on them that the Director was much pleased with the work done by both sides.

REMARKS.

General.—One of the most noticeable facts about this year's manœuvres was the range at which fire was opened both by infantry and artillery. The power of the gun and rifle at long range is being learnt at last without waiting for the costly experience of war. The campaign in Manchuria has apparently forced on the attention of France lessons which she might already have learnt from the South African war.

As far as could be seen the relations between officers, N.C.O.s and men were excellent, and orders were promptly and intelligently carried out; but the impression was gained that rigid discipline was replaced by a feeling of "camaraderie"; whether the latter will stand the strain of war it is impossible to say. The men were cheerful and keen at all times.

As usual, there was a tendency to do things which would be impossible in war, and the answer frequently given was, "Yes, we do so and so now, but of course we should not do that in war, and we did not do it during the instructional period."

The use of strong detached columns sent out in front was very noticeable, it is said to have been introduced and fostered by General Langlais.

On the first day of the manœuvres from a force of one division no fewer than four strong reconnaissances were sent out, each consisting of approximately 1 battalion of infantry, 1 troop of cavalry, and 1 section of field artillery. Two of these columns encountered the enemy and were merged in the general action; one met a column of equal strength and remained immobilized for the remainder of the day, the third marched unmolested through the enemy's columns, but was roughly handled when it endeavoured to rejoin its main body.

Such dispositions certainly appear to squander the strength of a division in a dangerous way, though they may perhaps be applicable in the case of army corps operations.

The above-mentioned columns were ordered to march along certain roads until they met the enemy, and in these circumstances were liable to slip from the control of the general officer commanding, and it is open to consideration whether their strength was not too strong for reconnaissance and too weak for effective resistance.

The three Arms combined.—Grand tactics were decidedly aggressive. If one side was compelled to act on the defensive for a time, such attitude was only a stepping-stone to a

determined counter-attack. A British general officer who was present writes as follows:—"The French are adepts at counter-attack; I never saw an opportunity lost, in fact in my opinion counter-attacks were frequently carried out when the attempt could only mean destruction. Still I prefer seeing this to losing the chance when it offers. Several times the counter-attack saved the situation or won a local victory."

On the last day the XIIth Corps, which was on the defensive, occupied a front of over six miles, and the attack of the XVIIIth Corps was delivered as follows:—One division on the right was to make a holding attack (it developed into something more aggressive than this) against the enemy's centre on a front of under two miles. The other division was concentrated on a front of about three-quarters of a mile, and was directed to attack a portion of the enemy's right only about half a mile in length. The remaining brigade was held in general reserve, but was committed very early in the engagement. It is interesting to compare these dispositions, as regards length of fronts, with those that would usually be made in similar circumstances at our own manœuvres. The attack of the XVIIIth Corps was, it is believed, criticized for "want of depth."

Owing to insufficient reconnaissance, mistakes were frequently made as to the correct positions of the enemy's flanks, and consequently an attack was directed inside a flank, which was thus left intact and formed a pivot for the counter-attack of the defending force against the flank of the attacking line which had pushed through.

A considerable amount of manœuvring of small detached forces with the object of drawing the enemy into certain positions was observable.

The cavalry were mostly employed as independent cavalry, but sometimes the orders did not make it clear whether their rôle was intended to be that of independent or protective cavalry.

As illustrative of this, the following extract from the XIIth Army Corps orders for the 12th September is given:—

"9. *The Cavalry Brigade* (reinforced by two Horse Artillery batteries, and one battalion of Infantry without packs) will take the road from *La Rochebeaucourt* to *Verteillac*, as the principal direction for the movement of the main body. The duties of the Brigade are:—

"(a) To secure the deployment of the Army Corps; to discover the main bodies of the enemy's cavalry and to force them to deploy (*les manœuvrer*), while preventing them from

on to those bodies of hostile cavalry, and in the event of their making any attempt against our flanks, to attack them in rear.

"(b) To clear the fighting front of the Army Corps in good time, by moving (according to circumstances) either to the flank most threatened, or to both flanks, or into the intervals [of the fighting line] with a view to taking part in the action; but maintaining above all and to the end [of the operations] a thoroughly effective watch upon our flanks."

There seemed to be a tendency for the cavalry when engaged in operations against their own arm to rather lose sight of the main issue, possibly due to the fact that some cavalry generals do not give much attention to combined manœuvres, but restrict their efforts to cavalry operations.

An interesting point was the pushing forward, on one occasion, of a battalion "allégé," i.e., relieved of their knapsacks which are carried in carts, in support of a cavalry brigade in advance of the advanced guards of the infantry columns; on this occasion it was usefully employed in opposing the advance of the enemy's cavalry and gave the horse artillery an opportunity of opening fire on hostile cavalry in close formation. It is, however, open to consideration whether an isolated battalion pushed forward in this way might not either prove rather a drag on the cavalry or fail to be in the right position to afford them support when required.

As far as spectators could judge, the artillery generally worked well in support of the infantry attack, though there was one flagrant instance of an attack being delivered quite unsupported by any guns.

There is no hesitation in pushing on batteries when necessary for the support of infantry, and the excellent support given by the guns in retirements was especially noticed by one officer.

As far as could be observed, there was no system of communication between the attacking infantry and the supporting guns, and consequently the artillery fire was sometimes stopped too soon.

Infantry.—Although to some of the officers attending these manœuvres there appeared to be still much room for improvement in the matter of taking cover, our Military Attaché reports as follows:—

"The infantry have made enormous progress in the act of concealment both as regards individuals and masses. Sentries stand quiet, and are very hard to find, and in manœuvring up to a position, battalions and even regiments

kept out of sight in a marvellous way, the enemy being frequently ignorant of their position until the critical moment had arrived."

The advance under long-range fire is usually carried out in section or half section (sometimes $\frac{1}{2}$ company) columns, generally in file or single file; the target presented is a poor one, and obstacles are easily crossed and passed.

The following notes by an officer who attached himself to an infantry regiment for the whole of one day's operations are interesting:

"I accompanied an infantry regiment during the whole of the operations on the 10th September. This regiment furnished the advanced guard to one column, and took part in all phases of the action. The country was thickly wooded and undulating. The view was usually limited to 300 yards. The captain (mounted) of the leading company reconnoitred in front as soon as there seemed any probability of the enemy being near. At about 800 yards from the enemy's main position, this captain returned to the advanced guard and gave a line of direction to a subaltern; the latter, accompanied by four men, scouted slowly in front, followed at a distance of 50 yards by a $\frac{1}{2}$ company in file; the rest of the battalion, also in file, followed 500 yards in rear, connecting files being dropped. The scouting party was very well led through a wood and reached a point within 200 yards of the enemy without being seen. The subaltern then deployed his half company at 2 paces extension and opened fire, the line being carried to right and left as the various companies came up. Initiative was left almost entirely to section commanders both as to advancing and firing, the company commander interfering very little, the battalion commander not at all. This system worked well; there was no chain of communication apparent from the firing line to reinforcing units, but these arrived at the right place. There was no confusion and very little noise.

"The subsequent advance prior to the assault showed an ignorance of the deadliness of modern rifle fire at decisive ranges. The fire-discipline was bad, men invariably stood or knelt, covering fire was not employed, ranges were not taken, ammunition carriers were not employed, men neither 'crawled' nor 'rushed,' but moved either in quick time or a slow double; no attempt was made to establish fire superiority, but the attack developed into a frontal attack on a position, and an attempt to carry it immediately by shock tactics; as far as infantry tactics at decisive range are concerned, the French still hold the views prevalent in the British army before the South African war. The favourable points were the universal decision

all ranks, and the good work of the subaltern officers, who appeared to lack nothing but experience."

The above remarks on fire-discipline, &c., are confirmed in the reports of many of the other officers, who were practically unanimous in the opinion that the "adjustment of sights" was poor, and many instances were recorded of incredibly bad "judging distance." One officer attributes the neglect of covering fire to the fact that, having no range-takers, and being unable to correctly judge distance, they are afraid, except at short distances, of hitting their own men.

It must be mentioned, however, that one officer reports that, though he saw no instances of covering fire by supports or reserves, fire support was frequently afforded by neighbouring portions of the firing line against points from which the defenders were bringing a specially heavy fire to bear.

Our Military Attaché mentions that volleys were more frequently used than at last year's manoeuvres, but that this form of fire was by no means general. He considers that targets were well indicated and the fire control good.

When acting on the defensive it was noticed that section commanders had a free hand as to when to open fire, and generally reserved their fire till they had a good target. The advanced posts in the low ground engaged the hostile firing line, and the troops in the trenches higher up fired on the supports.

There are 3 or 4 special scouts to each section of infantry; they have their valises carried by the regimental transport. They do not undergo any special training, but are selected for their intelligence and activity. These scouts remained at only about 100 yards from the unit they were protecting and, particularly when acting as flankers, they kept at a fixed distance regardless of the country. Their work was protective reconnaissance and not intelligence, and they made use of no system of signalling.

Regarding the mounted scouts attached to infantry units see under "Cavalry."

The marching was as good as ever. One regiment was noticed, after having been going for seven hours, striding along as if it had only just left camp; it marched for another two hours, till 10.30 a.m., and then after $1\frac{1}{2}$ hours' rest, marched again till 4 p.m.

The weight carried is, as is well known, very heavy.

Most officers have remarked that there were not many stragglers. Here and there a few men, sulked, generally reservists, and wanted their valises carried, but such cases were rare and were attributable rather to the mistaken readiness of commanding officers to put the valises of tired men on the regimental transport, than to a bad spirit among the troops.

The efficiency and marching powers of the different regiments vary immensely in France, for the quality of a unit depends on the quality of its commander more perhaps than in any other country. A good battalion with a bad commanding officer is impossible, and a bad battalion with a good commanding officer almost equally so.

As already mentioned companies were weak, about 130 in the line and 180 in the Colonial Infantry.

Cavalry.—The only cavalry day was the 12th September; but it was not a very instructive or interesting one, as what happened was that the two hostile cavalry brigades passed each other at an interval of 1 to 2 miles, and each came into collision with the opposing infantry columns. Whether the two cavalry main bodies were ignorant of their respective whereabouts or whether they deliberately avoided each other is not known.

The cavalry kept well out of sight when manœuvring, but their reconnaissance work appeared very moderate, and they do not to our ideas scout nearly wide enough; this was very noticeable with the advanced guard cavalry of columns, and it led to many mistakes.

The cavalry were never seen to dismount and use the rifle, and they are said to suffer much from an ever-present nightmare of the cavalry soldier being turned into mounted infantry; a large portion of the country was quite unsuitable for shock tactics, and therefore, as dismounted action was not resorted to, the cavalry brigade often became nothing more than an overstrong escort to a brigade of horse artillery.

These views regarding the neglect of dismounted action by the French cavalry are in marked contrast to those expressed on page 100 of the "Report on Foreign Manœuvres, 1906," and a want of uniformity in the training of the cavalry throughout the army is indicated.

Some poor cavalry and horse-artillery work was seen on one occasion when a brigade made a useless and exposed advance of about 1,000 yards to a position in the open, where they came under infantry fire, which obliged them to retire again almost at once, and in their retirement they came under heavy artillery fire. During the time the guns were in action the cavalry remained mounted, in mass, close to them, although there was natural cover near at hand. The cavalry seemed slow to act and to take a long time to concentrate at any point required; this is largely due to the want of signallers or other quick methods of communication.

Communication between advanced cavalry and the force in rear of it is maintained by means of connecting posts. This absorbs a large number of men, and the value of the cavalry reconnaissance work naturally suffers much from so slow a method of

When cavalry patrols were being collected for offensive action no provision was as a rule made for watching the country in the vicinity, and therefore while a small cavalry fight was in progress opportunities were often given for hostile squadrons to pass through unobserved.

The standard of horsemanship has not changed, and nearly all the officers who were present have recorded their high opinion of the riding of all ranks.

Two favourable points noted were that there was no useless expenditure of horseflesh; and that the French cavalry, whether working individually or in groups, &c., is skilful in the use of cover and is never forgetful of the value of concealment.

The system of cavalry scouts for infantry regiments (which was fully described in last year's report) was again in vogue. It is much appreciated by the infantry, but this duty is naturally not a popular one with the cavalry.

The opinions of independent observers as to the value of these scouts are by no means unanimous.

Artillery.—Some of the reports on the artillery are not quite so favourable as those of last year, most of the criticisms in the latter are repeated and in addition a good many other points are adversely remarked on. Whether this is due to the regiments taking part in this year's manœuvres being less well trained, or to their being judged by a different standard is difficult to say.

Last year the fire-discipline was much praised, but a senior artillery officer who attended the manœuvres now under consideration was of opinion that none of the batteries he saw were up to the mark as regards fire-discipline. Other artillery officers made critical remarks on this important branch of artillery training. It may be that elsewhere than at manœuvres these batteries would show better form, and the report of an officer who visited a French field artillery practice camp this summer was certainly of a much more optimistic tenour.

There is considerable variation in the reports furnished regarding the positions in which the artillery came into action, due of course to each officer basing his opinion on what personally came under his observation. But bearing in mind that the French guiding principle is "covered positions and indirect fire," it may be said that the selection of positions was, on the whole, good, with the reservation that not infrequently the distance of the guns behind the crest was such that total concealment was not obtained and the flash was visible, while the advantage of direct fire was given up.

The fact that the officer commanding, who must be where he can observe, can only command by word of mouth or by chain of orderlies, of course considerably hampers the choice of the actual position for the guns.

Only one instance was observed of field artillery coming into action in the open, and that was an unfortunate one, as they were under fire from an infantry battalion at 1,000 yards. The horse artillery took up positions rather more often from which direct fire was possible.

The commanding officer occasionally took up his place 100-150 yards straight in front of the guns; a French artillery officer admitted that there was some danger attached to this procedure but that that could not be helped.

The artillery units were apparently, like the infantry ones, considerably below strength; there were no spare numbers, and manhandling the guns on soft ground was heavy work for the detachments.

The brigade commander's staff was a very small one; there are of course no range-takers, signallers or telephone operators.

The officer commanding the artillery had a bicycle-orderly whom he used for communicating with the general officer commanding and with artillery brigade commanders.

The use of an up-ended wagon for observing purposes was not very frequent.

The placing of the teams and limbers in action was very haphazard, any formation and any position out of sight seemed good enough, and little attention was paid to obtaining effective cover out of the line of fire.

Some brigades had helios which were directed on to their targets to inform the latter that they were under fire. These helios were visible over approximately the same arc as would be covered by the fire of a battery.

As regards artillery tactics, brigades in the attack were usually kept concentrated, partly due probably to the want of means of communication, for certainly on some occasions dispersion would have obtained better results. In the defence dispersion was more frequent, and generally only a portion of the guns were brought into action during the earlier stages; on one occasion 5 batteries out of 9 were retained in reserve.

When a large unit such as a division is held in reserve for a counter-stroke its artillery is apparently kept with it and only used when required for supporting the counter-attack, but it is not known whether this is a general principle. Batteries did not change position unnecessarily, but some guns were sent up to short range to support the final attack when necessary.

The guns were never entrenched and the artillery do not appear to carry sufficient picks and shovels for this purpose.

Early and good, and on some occasions very bold, reconnaissance work by artillery commanding officers was generally observable, and brigade commanders availed themselves of every opportunity of calling up battery commanding officers to study the surrounding country and locate on the map the various well-defined points within sight.

Over rough ground the driving was often excellent, but it was rather careless sometimes when marching along roads.

Nothing new of importance was reported in connection with equipment.

There were no howitzers or heavy artillery at these manoeuvres.

It may here be mentioned that the report of a British officer who attended a French artillery practice camp for two or three days this year has been circulated confidentially to the army under the title "Extracts from a Report on a visit to the French Artillery Camp at La Courtine, July 1907." It gives many interesting up-to-date details regarding the French field artillery and their gun.

Engineers.—Rather more attention appears to have been paid to field fortification by the engineers than has previously been the case.

An officer of the Royal Engineers who was with the XVIIIth Corps and paid special attention to engineer work, reports as follows:—

"I only saw the engineer companies acting as infantry and digging trenches; the following information regarding their general employment at manoeuvres was, however, given me by the officers.

"They stated that it was customary for engineer companies at the Grand Manœuvres not to bring their equipment with them on account of the cost of transport, and the great length of road space occupied by it.

"In case of any technical work being required, the companies were supposed to requisition material on the spot.

"Each company was employed on one or two days in digging trenches. In addition to this the officers were able to give their men some instruction in preparing buildings and villages for defence by describing the operations required on the spot.

"The officers expressed the opinion that their generals were only beginning to realize the use that might be made of engineer companies on manoeuvres generally, but, so far as their experience went hitherto, use had rarely been made of engineers in attack.

"Officers and men expressed dissatisfaction at having so few opportunities of doing engineer work, and at generally being used as infantry, and then rarely in the fighting line.

"It may be stated that the southern part of the manoeuvre area contained no streams of such a size as to require the construction of military bridges, and that the troops were always cantoned in villages which were adequately supplied with water from wells.

"The two following special articles of equipment were noted:—

"(a) Waterproof bag to hold straw, used for making rafts and floating bridges.

"(b) Jointed saw (*scie articulée*).

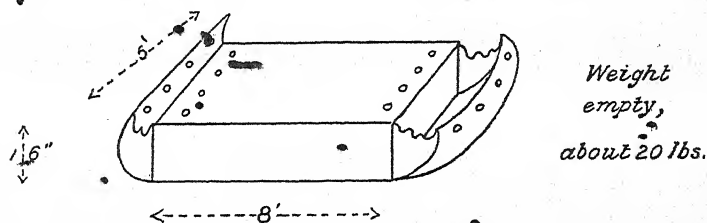
"The former resembles a large Wolseley valise (see sketch), and is made of strong brown waterproof canvas. It was only seen spread out on the ground, but it appeared that, when stuffed full of straw, it would take the form shown in the sketch.

"One of these bags is said, when stuffed, to carry six men fully equipped.

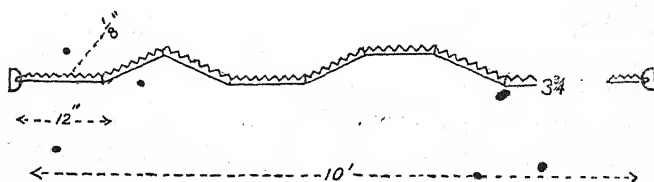
"A sketch was seen showing about eight of these bags made into a pier, the buoyancy of which was reported to be about equal to that of a pontoon.

"Apparently this bag is now an article of store.

"The jointed saw, shown in the accompanying sketch, looked very light, but the French officers considered it was efficient and convenient to carry.



a. Brown Canvas Waterproof Bag, to hold straw, used in place of light boat.



b Articulated Saw

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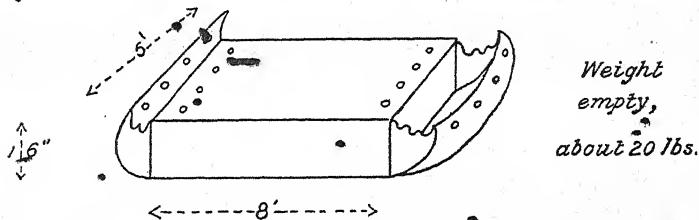
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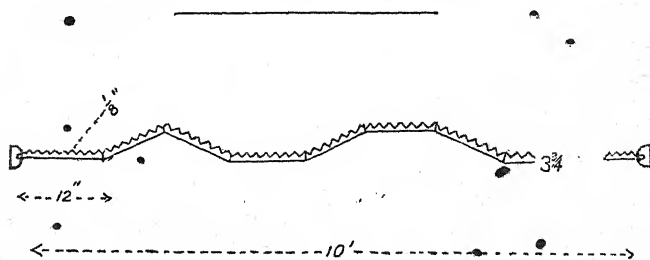
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b Articulated Saw

"The 'Commandant du Génie' informed me that, until the commencement of the manœuvres, he had never seen any of the three companies under his orders, as they were stationed at distant places.

"Theoretically all three companies were at his disposal for executing any technical work which he might require them to carry out, but he had to consider the possibility of one of the divisional companies being at the same time required by its divisional general, so he could only rely on his corps company.

"He had no assistant. During the manœuvres he was engaged in considering possible engineering work that might require to be done, and reports were sent to him daily of work done by companies."

The companies numbered at the most about 125 of all ranks, and had only a few carts with a very limited number of picks, shovels, and cutting tools.

Entrenchments.—An officer reports as follows on the works in the defensive position occupied by the XIIth Corps on the last day :—

"The trenches were dug on the forward slope, were well masked and concealed, and afforded an excellent field of fire.

"In the centre of the position the trenches were the merest scrapings, about 20 minutes' work. On the right there were no trenches.

"Head cover was not made, but the men sometimes put their valises on the parapet, and fired round them. Overhead cover was not used,

"Trenches were neither traversed nor recessed."

Although the picks and shovels carried by the infantry appear very light, some rapid entrenching work was done with them in light loam. The sides of the spades are sharp and can be used for cutting.

The ground generally was unfavourable for digging, for, after scraping away 6 inches of earth, sandstone "pan" or calcareous rock, which was hard to dig and afforded poor material for a parapet, was usually met with.

A new handbook on field fortification was recently published, but it is a very elementary work, and the art appears to be quite in its infancy in France.

Medical.—The sick were evacuated direct to permanent hospitals, but during the earlier periods *dépôts d'éclopés* were established to take in men who needed only a day or two of rest before taking the field again.

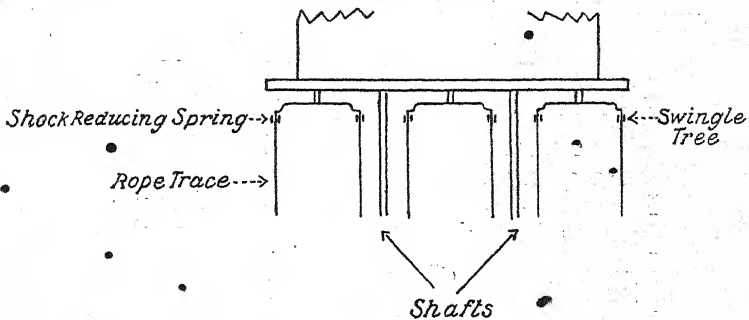
Telegraphs, Telephones, and Signalling.—Neither telegraphs, telephones, nor signalling were employed as methods

of communication, a fact which struck the British officers who were seeing French manœuvres for the first time, or had not done so for a long period, most forcibly. The opinion was freely expressed that the disadvantage of not having them was most strikingly evident on many occasions, and that France, if she does not develop these important branches of military science, is running a great risk, and will find herself much handicapped when it comes to war.

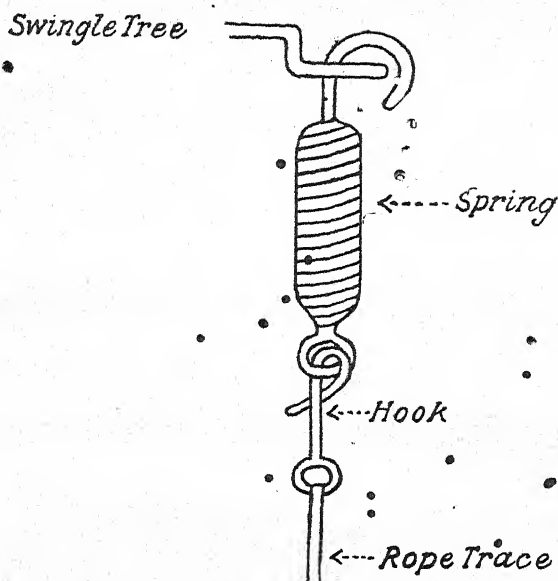
Transport (including Mechanical).—The three-horse teams were a new feature of the manœuvres and were well spoken of. The three horses are abreast, the centre one being in shafts. This form of team takes up rather more width, but it was said to be far easier to drive than four or six horse ones, and to have quite as much draught strength as the four-horse (some drivers said even the six-horse) teams.

An interesting point in connection with the attachment was that at each end of each swingletree there was a short piece of steel having the appearance of a very strong spiral spring, as shown in the accompanying sketch. When the trace was pulled, a spring yielded slightly, thus reducing the shock at starting. There was no appearance of yielding on the outside, so presumably the spring is situated in the interior.

The wagon inspected was marked "Poids 1665 K," and it was said that the weight thus marked always represented the total weight of the vehicle and its load; so that the three horses had a weight of less than 33 cwt. to draw between them.



*Sketch shewing arrangement for horses
3 abreast to draw "voiture à vivres."*



Sketch shewing shock-reducing spring

An important experiment was tried in mechanical transport, the XVIIIth Army Corps being supplied by automobile convoys from an advanced dépôt at Bordeaux, which during part of the operations was nearly 100 miles distant.

The cars were mostly the property of private individuals and were obtained in response to an appeal by the War Minister.

The following is a list of the mechanical vehicles used:—

Firms.	Vehicles.	Fuel.
Berliet - - -	6	Petrol.
Cohendet - - -	3	"
Gillet Forest - - -	2	"
Dartacq-Serpollet - - -	4	"
Purrey - - -	4	Steam.
Lorraine Dietrich - - -	2	Petrol.
Panhard - - -	1	"
Dion Bouton - - -	1	"
Mors - - -	2	"
Brillie - - -	2	Naphthaline.
Peugeot - - -	1	Petrol.
Turgan - - -	1	"
Delaugère et Clayette - - -	1	"
Various (1 of each) - - -	10	"

The horse power varied from 12 to 40. The Peugeot (12 h.p.) carried a load of 1,000 kilos. (2,200 lbs.).

The Empress (25 h.p.) carried a load of 5,000 kilos. (11,000 lbs.), the lorry itself weighing 3,500 kilos. (1,700 lbs.).

Of the various types used the Mors (load 7,000 lbs.) proved, it is said, the fastest and the Dion Bouton the most reliable; the Delaunèze et Clayette appeared to be the best type, the weight of the car being 2,500 kilos. (5,500 lbs.) with a carrying capacity of 5,000 kilos. (11,000 lbs.).

Convoys averaged $9\frac{1}{2}$ miles an hour, including halts.

The B. S. Terrilhon tyre is stated to have proved very satisfactory.

The Berboudnan and Polack types are also well spoken of. Both india-rubber and iron tyres were used, apparently with equally good results.

Before the commencement of the manœuvres there were two tests, one in hill-climbing and the other in descending a hill to try the brakes.

The lorries, which with their varying speeds, horse power, and carrying capacity, were rather a "scratch pack," were then grouped into 2 convoys. These were subdivided into sections, which admitted of each of the various types being used to the best advantage.

The empty lorries were filled with straw, and were actually used to "evacuate" sick and lame men back to Bordeaux. Two doctors accompanied each convoy. No other troops were carried.

Two motor cyclists were attached to each convoy.

The experiment is stated to have been a complete success, and regimental officers were full of praise of this means of transport, by which the line of supply was freed from the railway, and the regimental supply wagons were often saved long distances.

It was said that the only hitch occurred when a wide détour had to be made to avoid a bridge, the carrying capacity of which was insufficient. All routes for mechanical transport would have to be reconnoitred.

Side roads were used but not unmetalled farm tracks.

All supply convoys were neutral. In connection with these automobile convoys, see also Appendix A.

System of Supply.—The distribution of supplies was carried out under normal arrangements.

The manœuvring period was divided into three phases:—

1. Concentration.
2. Manœuvres.
3. Dislocation.

Phases 1 and 3 had special methods of supply.

During phase No. 2, the period of actual manœuvres, the supply arrangements were organized as follows :—

I. Lines of communication, which arranged for the supply of bread, corn, sugar, compressed hay, and preserved meat.

II. Local purchase (by special appointed officers, or direct by unit commanders) of hay, straw, bread for soup, and ordinary groceries.

Fresh meat was arranged for by the Army Service Corps, and was supplied sometimes "on the hoof," sometimes already cut up.

There was no change from the usual manœuvre scale of rations.

Billets.—There is nothing new to report regarding the system of billeting, and the remarks on this subject in last year's report hold good for the manœuvres now under consideration. It was very noticeable how far from unpopular with the inhabitants the billeting of the troops is.

Cyclists.—Two cyclists per battalion are authorized and supplied with government cycles which are constructed to fold up and can be slung over the shoulders (Gérard type.)

In addition to the above, men are encouraged to volunteer for this service, providing their own machines. Their kits are carried for them in the regimental wagons. The numbers of such volunteers vary greatly in the different battalions.

The two regular battalion cyclists were usually employed as orderly to the commanding officer and to the officer in charge of regimental transport respectively. There were no cyclist units at these manœuvres.

Intelligence.—There appeared to be no system of collecting "intelligence" except through the cavalry. There were no Intelligence officers, no Intelligence cyclists, and the motor car reconnaissances, which have been a feature at some of our recent manœuvres, were non-existent.

Map-reading.—All ranks read and use their maps well, and it is very noticeable how carefully the troops study them.

Reception and Accommodation of Foreign Officers.—Our Military Attaché who attended the manœuvres as an official guest reports as follows :—

"The 28 foreign officers who attended the manœuvres were magnificently received and provided for. A special train was at their disposal for the week and everything was made easy for them. To each officer was assigned a mounted orderly, which is a great addition to one's comfort when constantly dismounting, using the glass, and taking notes. I strongly recommend this to those charged with the care of

foreign attachés attending manœuvres in Great Britain. One of my colleagues who has also been accredited in Great Britain informed me that they had no mounted orderlies at the last manœuvres he attended and that they missed them very much.

"Five French officers were detailed to look after us, but we were free to go where we liked, and ask what questions we liked; and to our questions we invariably received courteous replies. The foreign officers were not, however, invited to the Conference after each day's operations, neither were they informed what criticisms had been made."

APPENDIX A.

Orders on the organization of Supply by the Automobile Convoy.

The XVIIIth Army Corps will be supplied during the manœuvres by means of two convoys of automobile vans whose park will be at Bordeaux.

The officer commanding these convoys will at the same time fulfil the functions of officer commanding line of communications at the controlling station (gare régulatrice).

One convoy will start daily from Bordeaux carrying one day's provisions for the army corps and will move to the points of contact (*see below*) fixed by the general officer commanding XVIIIth Army Corps.

The ordinary principles of daily supply will be adhered to; that is to say, that the general officer commanding will inform the officer commanding convoys and the intendant concerned, what number of rations are required, and these figures will only be altered in case of a considerable change. The exact numbers will however be communicated for the purpose of keeping the amount of bread carried as near as possible correct.

Supplies can be transferred on any of the roads (marked with a double line on the 1/80,000 map) where the automobile trains and the regimental supply wagons can be brought alongside one another without blocking the road.

The general officer commanding XVIIIth Corps will inform the officer commanding convoys by wire daily of the points of contact and of the hour, after 2 p.m., at which the automobile and regimental convoys will meet there. Three or four points should be selected, one for each division, and one or two for the non-divisional troops.

In war the transfer of supplies might take place in the early morning, for the supply columns could march at night.

Should he be unable to fix on the points of contact overnight the general officer commanding should select a point of rendezvous, so chosen that the subsequent moves to the point of contact may be forward and not backward. Here the convoy will be met by a staff officer (or the officer in charge of the regimental supply wagons of the army corps) who will give the necessary information as to the points of contact to which the automobiles are to proceed.

Administrative officers, at the rate of one per point of contact, will accompany the automobile convoys and will superintend the distribution of the supplies to the regimental supply columns.

The fatigue parties necessary for transferring the supplies will travel on the automobiles.

The order regarding non-distribution of small amounts of groceries and the distribution of surplus bread is the same as for ordinary supply trains.

The distance ($62\frac{1}{2}$ miles) from Bordeaux being too great to admit of the automobile convoys getting back there the same night, each empty convoy will be billeted for the night in some locality outside the zone in which the troops are billeted.

In case of breakdown the supply will be assured by rail in accordance with the orders previously issued.

FRANCE.

Part II.—Ist Army Corps.

EXTRACTS from the REPORT of an OFFICER present unofficially at the MANŒUVRES of the Ist ARMY CORPS, which took place in the COUNTRY WEST of ARRAS from the 10th to 13th September 1907.

General.—In consequence of the alteration of the terms of service in the active army, by the decree of 1905, from 3 to 2 years service with the colours, and having attended the whole period of the grand manœuvres in 1905 I looked closely to detect any change in the appearance, drill, or general efficiency of the troops. I could discover no difference, they appeared just the same as they did then. It will, however, be necessary to wait until 1909 before the full results of the change in the regulations appear. At present the reserves which bring the active army up to its war strength are three years' men, with periods of 28 days reserve training; and as they after all form the real fighting portion of the army it will be necessary to wait before judging what the effect of the shortened term of service really will be.

The manœuvres of the Ist Army Corps while not showing the same polish and exactness as at grand manœuvres were on the whole well carried out, but one could not help noticing that the cavalry, which is undoubtedly efficient, was not used to the fullest advantage.

They often seemed tied to the infantry, conveying the impression that undue restrictions were imposed upon them, so unlike was their action to that usually expected of cavalry.

The system of umpiring requires improving; the impossible situations created by the close combat of the opposing forces could never occur in war, and might to a great extent be obviated by proper umpiring, to the great advantage of the troops, without in any way interfering with the attack-spirit or the susceptibility of the officer. (Compare remarks of our Military Attaché on umpiring, page 31). The umpire staff was on a larger scale than two years ago, and appeared to compile full reports, but interfered executively in a minor degree only. Owing to the system of scattered cantonments outpost duties were not much practised, except at early dawn when in close touch; and no night operations were undertaken.

Infantry.—The companies were about 150 strong, half of whom being reservists.

The tactics employed showed a great advance in simplicity and elasticity on those of the 1905 manoeuvres and evidently the teachings of the 1904 Infantry Drill Regulations have been taken to heart. The firing line presented an irregular series of squads extended at one pace at varying distances apart. Owing to the very short duration of the field days (they were nearly always over by 1 p.m.) very little time was devoted to the systematic individual use of the ground, but the sections or squads at times advanced man by man or in single file under cover, and then resumed extended order again.

Sights were adjusted on the range being given, and, in spite of the cumbersome packs, the firing position generally showed sound instruction; the men were well in hand and carried out the orders cheerfully and quickly; the "sous-officiers" commanding sections appeared to have a good grip over the men, much more so than the young officers newly posted from St. Cyr. It is noticeable that the French soldier with his natural military qualities is quick to observe and criticize mistakes, but even when he is obviously quite conscious that the situation has become impossible and absurd one there is no hesitation in carrying out orders.

The heavy close order columns used in the 1905 manoeuvres for the assault were conspicuous by their absence, but the bayonet charge by the battalion was constantly used, supported and reinforced by other troops; speaking generally the principle of the echelon was much in evidence.

In changing positions the movements of the infantry were performed with great celerity; the men were very handy and quick in forming into new alignments and showed all the characteristics of sound work and good and intelligent training.

Cavalry.—There is no doubt that the French Cavalry is in a most efficient state, one could not fail to observe when accompanying these troops the admirable order in which they rode and their easy seat on their horses; all seemed as though they had spent a lifetime in the service instead of the short time they really do, and some of them were reservists only called up for their "refresher" in the ranks. The officers are undoubtedly of a superior class to those in other branches of the service, and among their strong points are horsemanship and equitation.

Since the first time I saw French Cavalry at manoeuvres in 1891, the troop horse appears to have greatly improved, showing a lot more breeding and quality, this remark applies in particular to the heavy cavalry and dragons, whose horses are, in my opinion, greatly superior to those ridden by the

light cavalry; the dragoon horse of 1891 bore a close resemblance to those ridden in our services at that period, and subsequently, but the present one is a much higher class of animal than was seen in those days.

The cavalry are skilfully led and are intended not only for shock tactics against their own arm, but also against the other arms on the battlefield.

The pantaloons and legging, with lace boot, which now almost entirely supersedes the booted overalls, is a great improvement; the lower part of the legging covers the boot-lace, and a short-necked hunting spur is used. This class of legging, however, when exposed to much wet wrinkles and turns up over the foot, which is a disadvantage.

Artillery.—The artillery worked very closely with the infantry and it struck one forcibly that they were, metaphorically speaking, a part of that arm. The ground was very suitable for this co-operation, and it was generally possible for the artillery to give effective support without advancing to close ranges.

There seemed to be a general absence of escorts, even when proceeding to a distant part of the field of action, and sometimes far removed from any of the other arms. In retirements the tendency of the batteries was to remain in action as long as possible and give every support to the infantry.

Direct fire was more frequently used than indirect. (N.B.—This is quite contrary to what is generally observable.)

On no occasion were pits or epaulments made for the guns.

A different kind of smokeless powder was used from that seen at the manoeuvres in the East of France in 1905; the flash of the present powder is brilliant and easily observable, and the detonation is very loud.

The wagon body on the left flank of the battery was nearly always used as an observation post by the battery commander; he could often be seen from long distances and the position of his battery was thus disclosed.

FRANCE.

Part III.—VIIIth Army Corps.

EXTRACTS FROM A REPORT OF AN OFFICER OF THE IMPERIAL YEOMANRY.

GENERAL OBSERVATIONS.

The life and elasticity of the French soldier is the feature most strongly marked. The men looked keen and happy and interested in their work. The officers seemed to treat them as human beings and fellow citizens, and to be thoroughly proud of them. The French soldier seems to fulfil all that one has read of him—of his unexpected capacities, of his handiness in camp and on the field, of his dash and spring and flexibility. All the units of this Army can march well enough to be able to manœuvre even on the extended fields of modern war. All the superior officers talked about their profession with knowledge, and to hear them describe or discuss a tactical situation in the marvellously happy and precise technical terms in which their language abounds is like reading a page of Jomini. The conception that animates the officers is exalted. With the experiences of 1870 in their minds, with the stern fact of the ever-growing population and preponderance of Germany before them, they disdain altogether the idea of a weak defensive behind fortresses, and believe that now as of old the frontiers of France and the fortunes of her army can only be maintained by the valour of her sons. This sovereign virtue has its defects; but no one can refuse to admire it.

The whole of these manœuvres were most life-like. On calling to mind, however, the German operations which I have seen, a feeling of German dead-weight predominance steals irresistibly over one's mind. Numbers, organisation, cohesion, physique, matériel, are unyielding factors in speculative computations. Whether the German colossus will be found in the hour of trial to have a narrowed vision and a fagged-out heart, whether the French people will find the personal leadership capable of realising their unmeasured latent forces, are questions upon which one opinion is as good as another. But whatever may be the results of a comparison, it is impossible to watch the field operations of a French army corps without recording one's admiration of a spectacle of high military excellence, science, and vitality.

I may, however, notice a few specific points in criticism : I.—Whether from policy or neglect, the entrenching was most inadequate and scanty, and not only were the field works just scraped together, but their alignment rarely followed the correct military crests. In both these respects the Germans have much to teach them. II.—Signalling in all its branches was conspicuous by its absence. Field wires were few and far between. III.—No heavy field guns accompanied either side, although such weapons are now indispensable to the operations of any force of over 15,000 men. I was informed that in France ranges of more than 3,000 yards are rarely obtained, but this is not so. IV.—Although the country was admirably suited to the operations of rifle-armed cavalry, none were employed or appeared to exist. Only a carbine and sword are carried by the horse soldiers. The modern developments of cavalry tactics do not seem to have been thoroughly studied on the continent.

Matériel.—In Artillery the French are beginning to pay the forfeit of having taught the world. Later developments have to some extent superseded their original discoveries. But the science of Artillery finds its home in the French service, and one would expect that their next re-armament would carry them again to the right of the line. Their machine-guns—more like automatic rifles than guns—re-loading by gas, not recoil—firing ammunition on long clips instead of from belts, appeared at a general view in every respect superior to the Maxim gun. They have been newly issued and were very numerous.* It was a blow to learn that the French rifle had not been renewed since 1887. It does not use a clip in loading, but the cartridges have to be put separately into the magazine. The disadvantages of this method, both as regards rapidity of fire and control of ammunition expenditure, are painfully apparent, and many of the French officers with whom I talked were anxiously looking for a change. The French army has not yet adopted a proper campaigning kit, though all admit its advantages. Their blue uniforms are, however, of such a workmanlike cut that they compare very favourably with the Germans. The knapsack is much too heavy and cumbrous, and the little messing-tin which crowns it, besides being itself a conspicuous target, makes it hard for the soldier to fire lying down. But of course in war they would soon throw them away. Boots excellent; a great speciality and well worth the thought and labour expended.

* It is only quite recently that a decision has been arrived at regarding machine guns. Hitherto only experimental issues have been made; now about 1,000 have been ordered. They are of the Hotchkiss type, some of them being obtained direct from this firm, and others of a slightly modified form being made at the government factories.—G.S.

These notes would not be complete without a reference to the general whose guest I was. This officer, who presided over the manoeuvres, would be the Generalissimo directing the group of armies upon the Rhine frontier in the event of war. He is a man of high quality and distinction, perfectly tireless in his professional duties, of charming courtesy, and very wide general knowledge, and—so far as I could judge—a commanding authority on military subjects. He and his staff worked all day and nearly all night. Except at meal times, he was perpetually engaged upon the control of the manoeuvres. In two successive nights he did not go to bed for more than two hours.

One observation which he made upon the effect of modern conditions upon the defensive and offensive respectively I will set down. "The power of modern weapons," he said in effect, "no doubt increases the defensive strength of a brigade or a division, or a corps, when opposed to a proportionate force. But when the numbers and distances are expanded to the scale of modern battlefields, when armies of four or five hundred thousand men confront each other along lines of seventy or eighty miles, the maintenance of a purely defensive attitude is wholly impossible. Four or five days are then required for the development of the attack, and if during all that period the advantage of the initiative is surrendered to one side, the result can scarcely be less than fatal to the other: for the reserves, which in old battles could be moved by the defence at critical moments to decisive points, cannot now reach those points on account of the great distances involved. The defence is therefore compelled to await an emergency which, when it has arisen, it is already too late to meet; whereas the attack is for four or five days in succession pursuing a combined and unfolding plan, and knows exactly on which points on the fifth day its great masses will be directed." Therefore he concluded that even if the forces were uneven upon the field, the defence must always have a positive plan of its own which it is pursuing without regard to any attack, however general. He illustrated this view by references to the tactics of the Russians at Mukden, who he declared could without doubt have cut General Nogi from the main Japanese army by a vigorous and wholly independent offensive on the right centre.

FRANCE.

Part IV.—3rd and 4th Cavalry Divisions.

The following is a *précis* of the report of a British Army Service Corps officer who, by permission of the French military authorities, was attached to the 28th Dragoons (4th Brigade, 4th Cavalry Division) from the 1st to 10th September 1907.

The manœuvres took place in the country about Reims, Châlons, and Verdun, and were under the direction of General Trémeau, commanding the VIth Army Corps.

COMPOSITION OF THE FORCES.

The troops engaged were as follows:—

3rd Cavalry Division.

Commander:—General Marion.

7th Brigade of Dragoons.

2nd Brigade of Hussars.

6th Brigade of Cuirassiers.

Two batteries of Horse Artillery.

1 troop cyclist pioneers (*sapeurs-cyclistes*).

4th Cavalry Division.

Commander:—General Durand.

4th Brigade of Dragoons.

1st Brigade of Hussars.

3rd Brigade of Cuirassiers.

Two batteries of Horse Artillery.

1 troop cyclist pioneers.

The 12th Infantry Division and two battalions of chasseurs à pied took part in the operations on the 7th September.

NATURE OF OPERATIONS.

The 2nd to 4th September were devoted to preliminary training, and the manœuvres took place from the 6th to the 9th September.

Preliminary training.—On the 2nd September brigades were exercised under their own brigadiers, the points to be studied and practised being rapid and accurate transmission of orders and the use of echelon formations. The necessity for practice in these matters was exemplified in the operations of the 4th Brigade which manœuvred against a skeleton force.

As regards echelon formations the principle expounded by the brigadier was that when these formations are used no fixed distance between the echelons can be laid down, but experience should prove the best guide. The distance should be such that one echelon can support the other without delay.

On the 3rd September divisions were at the disposal of their commanders. Two of the brigades of the 4th Division operated against each other as follows:—

The brigade of Hussars (Red force) was sent off behind a wood about $1\frac{1}{2}$ miles away, and after a reasonable interval the Dragoon brigade (Blue force) moved against it, preceded by its advanced guard, consisting of one squadron. The main body was in "column of mass." After we had lost sight of the advanced guard I am unable to say what became of it, but when the General Officer Commanding and Staff (to which I was attached) arrived on the crest of a ridge, we saw the whole of the opposing force advancing against us about 500 to 700 yards distant. The sketch opposite shows the general conformation of the ground and disposition of the troops.

The General Officer Commanding immediately ordered the artillery to the front; they arrived at a gallop and unlimbered on the top of the ridge, but before they were able to fire a round they were charged by about two squadrons of Hussars. The Blue general led a dragoon regiment against these Hussars, sending the remainder of his force against the rest of the enemy which was advancing up the slope at a gallop. The halt was then sounded. The wood on the left of the Blue artillery was not made use of.

On the 4th September, the last day of the preliminary training, the 4th Division was organized in two opposing forces, each of 3 regiments and 1 battery of horse artillery. There was nothing special to note regarding the operations.

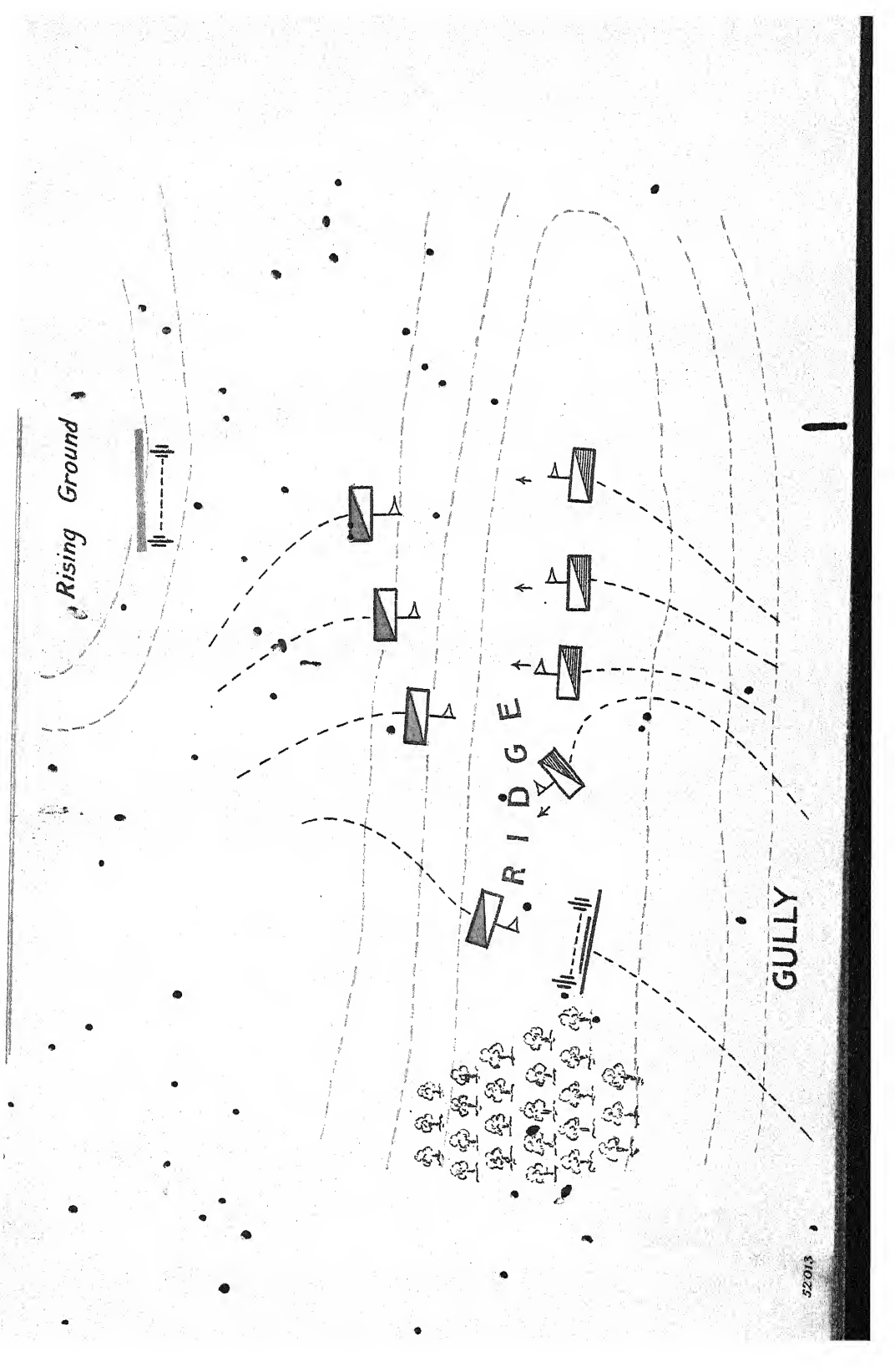
At the conference General Durand spoke as follows regarding the duties of an advanced guard.

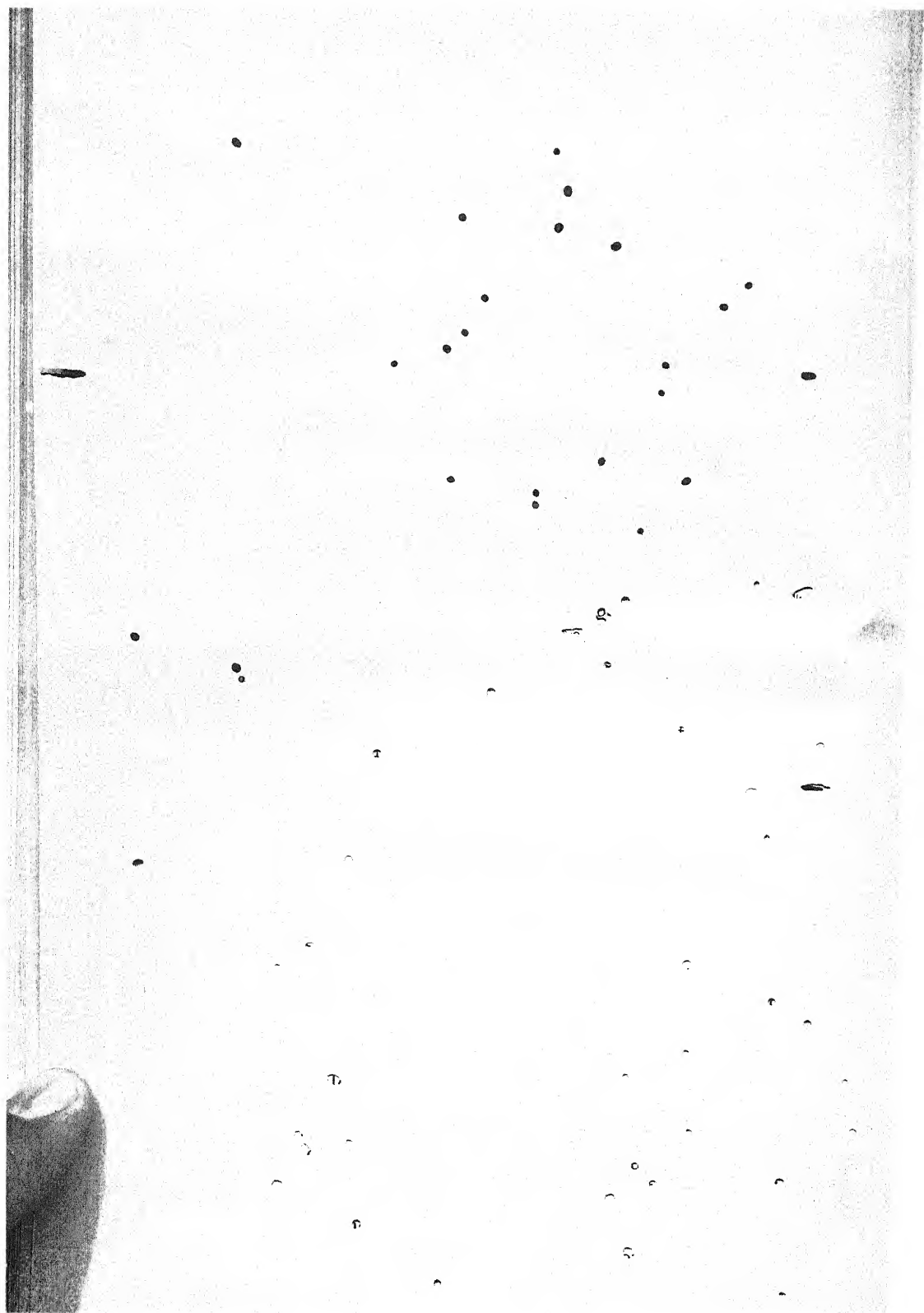
"How should a cavalry commander act so as to fight where he chooses and as he chooses? His advanced guard must be so composed that it can ensure for him the possession of points commanding the ground on which he intends to fight; it must give him sufficient space to his front to see the enemy coming. In the particular case in point, if machine guns, and even artillery, had formed part of the advanced guard, the latter would have been able to contain the enemy's advanced guard and to neutralize the

Rising Ground

RIDGE

GULLY





“ effect of his artillery ; it would have given him the initiative
 “ instead of forcing him to accept battle under adverse con-
 “ ditions. An advanced guard must advance by successive
 “ rushes from position to position and hold them, if necessary,
 “ by dismounted action ; it must at all costs ensure liberty of
 “ action for its main body.”

Manœuvre Period, 6th September.—The 3rd Division (Red) had orders to cover a certain railway junction against possible attempts of the enemy's cavalry to seize it. The instructions for the 4th Division (Blue) were to advance on this railway junction and to hold it until the arrival of an infantry battalion by rail. When the General Officer Commanding Blue first located the enemy, he endeavoured to reach his objective without coming into collision with the enemy's main body, but, finding this impossible, he made his immediate objective a certain plateau, in gaining which he hoped to forestall the enemy. This he succeeded in doing, and his horse artillery battery, galloping into action, opened rapid fire on the Red troops which were still in mass and were unable to deploy owing to the nature of the ground. At the conference the subject discussed by the General was reconnaissance ; he dwelt on the necessity for a corps of cavalry to multiply its reconnoitring parties, to establish touch with the enemy without delay, and to maintain it by means of officers sent to observe and report on his movements. If the 4th Division (Blue) had any advantage in the day's operations, it was due to its reconnaissance work, by means of which the General Officer Commanding was frequently and accurately informed regarding the enemy's movements. The 3rd Division (Red), on the contrary, was obliged to fight under disadvantageous conditions, through not being able to follow sufficiently closely the movements of the Blue force.

The Blue artillery commander received praise for coming into action in advance of the cavalry, and for the rapidity with which his guns opened fire.

On the 7th September there were two mixed forces :

Western Force (Blue)	{ 3rd and 4th Cavalry Divisions. 9th and 18th Battalions of Chasseurs à Pied (Rifles).
Eastern Force (Red)	12th Infantry Division.

Blue received orders on the evening of the 6th to reconnoitre the following day and locate and delay the advance of a hostile force said to be advancing in a westerly direction.

Red, who was holding certain passages of the River Meuse, had orders to reconnoitre westward on the 7th while maintaining his dispositions for covering the river passages.

Blue advanced in two columns, and when the two forces came into contact, the whole of the 3rd Cavalry Division

charged a force of Red infantry which was partly in scattered groups in the fields, and partly lining the fringes of the woods. The charge was unsuccessful, the directing staff considering that it would have been both costly and fruitless.

The 4th Division, being stopped by superior forces, resorted to dismounted action; this was the only occasion on which any such action was observed.

An attack made during the night of the 7th on one point of the line held by Red was unsuccessful. On the 8th the General Officer Commanding Red commenced to retire across the Meuse, as he had been instructed to do if the enemy proved too strong; in the meantime Blue was preparing to advance, strong reconnaissances having been pushed forward to gain information. When the General Officer Commanding Blue discovered that Red was retiring he decided to concentrate and endeavour to break through the enemy's line about the centre.

The Blue infantry made a frontal attack, while all the cavalry except one brigade moved round to the right and charged the enemy's left flank, the remaining brigade attacking his right.

During its advance the main cavalry force had to move over $1\frac{3}{4}$ miles under fire at 1,300 yards range and less, and the pace was necessarily very slow owing to the nature of the ground.

The manœuvre executed on the 9th was the passage of a defile by the whole of the 3rd and 4th Cavalry Divisions, with the object of attacking a force advancing on the entrance to the defile; this latter was a skeleton force, and the operation had no particular interest. The column, which was one of great length, closed up and passed through the defile at a fast trot, deploying as rapidly as possible on reaching the open ground. The attack was made in a disjointed fashion as, owing to the fact that only one road was used, the units in rear could not reach the open ground in time to co-operate with the head of the column.

REMARKS.

Concealment.—Neither infantry nor cavalry made use of cover to any extent. Large bodies of cavalry in close formation were frequently halted on the skyline within comparatively short range of the opposing infantry, whilst infantry stood up in groups in the open fields and fired at opposing infantry and cavalry. (Compare the remarks in the report on the manœuvres of the XIIth and XVIIIth Corps, page 34).

Machine guns.—These guns were on tripod mountings and were transported on carriages with limbers. They have much

the same appearance as engineer tool-carts, but are lower, and as they have cranked axles, there is little likelihood of their being mistaken at a distance for guns.

They can be fired from the carriage, but it is said that they are not reliable when used in this manner. They are therefore taken off the carriage and mounted on the tripod—an operation which occupies some considerable time—before fire is opened.

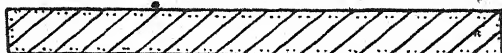
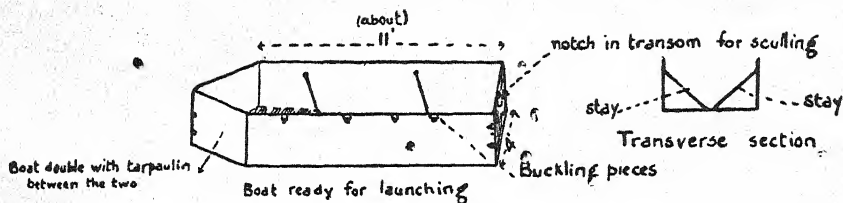
The gun is air cooled and has no water-jacket; in explanation of this, one of the officers said, "You cannot always be sure of getting water, and as the guns are in pairs one can be fired while the other cools."

The recoil is taken and partially absorbed by a spiral spring around the barrel which brings the lock back to the firing position. Ammunition, in clips of about 30 rounds, is fed into a feed-block on the left-hand side; it appears to be the same as that used for the carbine.

Engineer bridging equipment.—On the afternoon of the 3rd September an engineer officer gave a lecture on, and a practical demonstration of, a new collapsible pontoon bridge known as the "Pont Véry," of which each cavalry regiment is to carry a section. A party of engineers was present with a section of the bridge, and the lecture was delivered on the bank of a stream about ten yards wide, over which the bridge was thrown. When completed it was crossed by a dismounted party, a mounted party, and a 75-mm. (3-in.) field gun and limber (man-handled). When the gun was directly over the boat nearly half of the volume of the latter was immersed.

The number of boats to be carried by each regiment could not be ascertained, but it is believed that it will be four, conveyed in two wagons.

Each boat is made of wood in two sections, one of which fits inside the other; a tarpaulin is placed between the two and secured to the gunwales with straps through slots and buckling-pieces. When the boat is in use the sides are kept rigid by iron stays from the gunwales to the centre of the boat; for packing purposes the boats fold flat, hinging on continuous strips of leather riveted along the joints. Chesses are not used, the baulks themselves forming the roadway. Each of these baulks consists of two rectangular wooden beams united by diagonal planking; they rest on the gunwales, one sufficing for a foot-bridge, whilst three are required for the passage of vehicles. Starting with the bridge packed on the wagons, it took about 20 minutes to throw a foot-bridge across the stream in question.



TOP VIEW OF BAULK.

Supply.—The principle governing the system employed in war is that cavalry shall live on the country, and this system, with certain modifications, is employed on manœuvres. Each regiment has a supply officer who is appointed by roster from the subalterns; the present supply officer of the 28th Dragoons has held the appointment for two years, which appears to be about the limit. These officers have no expert knowledge of foodstuffs; but the veterinary officer, or, in an infantry regiment, the medical officer, is always present at the issue of meat. Each cavalry regiment has six supply wagons at the disposal of the supply officer, who purchases supplies wherever and whenever convenient, and is responsible to, and under the general guidance of, the divisional administrative supply officer (*sous-intendant*). He is in possession of a confidential list of prices which must not be exceeded. A paragraph was inserted in the daily operation orders, issued usually at about 2 p.m., of which the following is an example:—"The regimental supply columns will rendezvous "at—(time and place)—where they will be met by a staff "officer who will give the detail of billets. (*Ordre du "cantonnement*)."

Whenever possible the divisional *sous-intendant* informs each supply officer beforehand of the localities of the billets; this, of course, greatly facilitates his task, as he is able to write to the municipal authorities for particulars. During the manœuvres now referred to, however, this could seldom be done, and supply officers had to purchase wherever they could; sometimes they carried a day's supplies with them from the last halt. Bread had to be ordered beforehand, but meat was always plentiful.

The following were the arrangements under which the 28th Dragoons were supplied:—

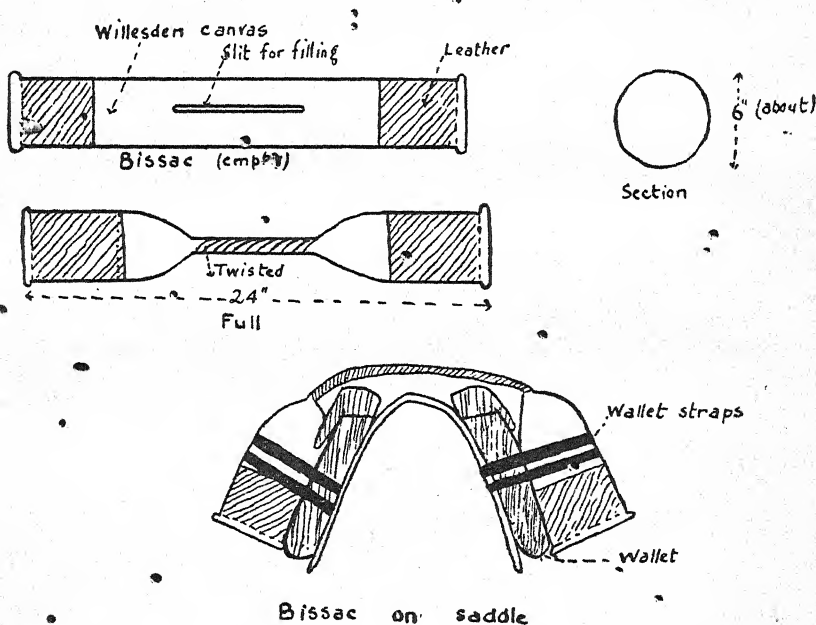
Oats were never purchased locally, but were sent by rail daily from a dépôt at Châlons to the nearest station.

Groceries and vegetables are always bought by squadron commanders, and do not concern the supply officer, who therefore, in this case, had only to buy bread, meat, hay, and straw.

• *Method of carrying feeds.*—The horse's feed is not carried in the nosebag, but in a *bissac*. The officers' pattern is a canvas bag closed at both ends, but slit longitudinally in the middle, the ends being covered with leather. The oats are put into it and the weight evenly distributed on both sides, the two ends being then twisted in opposite directions to prevent leakage. It is placed over the pommel and strapped to the wallets on both sides.

The men's pattern is somewhat similar, and is used for drawing rations, &c.

Nosebags are carried in the wallets.



GERMANY.

Part I.—Imperial Manœuvres.

The Imperial Manœuvres took place in Eastern Westphalia on the 9th, 10th, and 11th September, and were carried out by the VIIth and Xth Army Corps, to which the "A" and "B" Cavalry Divisions were attached.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Blue Force.

Commander.—General of Cavalry Freiherr von Bissing.

The VIIth Army Corps consisted of the 13th and 14th Divisions and corps troops, with the 41st Division attached. (No 41st Division actually exists in peace time and this division formed for the manœuvres, was composed of the 79th Brigade (the third brigade of the 14th Division) and the 43rd Brigade from the 22nd Division of the XIth Army Corps.)

"A" Cavalry Division consisted of the 16th, 14th, and 7th Cavalry Brigades, the horse artillery brigade (2 batteries) of the 11th Regiment of Field Artillery, No. 2 Machine Gun Section, a cavalry pioneer section, and half a section of field signallers.

Total:—37 battalions, 45 squadrons, 31 batteries of field and horse artillery, 4 heavy batteries, 2 machine gun sections, 1 battalion of pioneers, 1 cyclist company, 1 cavalry pioneer section, 4 telephone sections, 1 corps telegraph section, 1 balloon section, 1 searchlight section, and $\frac{1}{2}$ section of field signallers.

Red Force.

Commander.—General of Cavalry von Stünzner.

The Xth Army Corps consisted of the 19th and 20th Divisions and corps troops, with the 17th Division (less its third brigade, the 81st of the IXth Army Corps) attached.

"B" Cavalry Division consisted of the 5th, 17th, and 19th Cavalry Brigades, the horse artillery brigade (2 batteries) of the 10th Regiment of Field Artillery, a machine gun section, a cavalry pioneer section, and half a section of field signallers.

Total:—37 battalions, 45 squadrons, 33 batteries of field and horse artillery, 4 heavy batteries, 2 machine gun sections, 1 battalion of pioneers, 1 cavalry pioneer section, 1 cyclist company, 4 telephone sections, 1 corps telegraph section,

1 wireless telegraph section, 1 balloon section, and $\frac{1}{2}$ section of field signallers.

The infantry divisions are reported to have marched out with an average strength of 12,000 men each, and the cavalry divisions with about 4,000 men each. Thus the Red and Blue forces would each be about 40,000 strong, giving a total of 80,000 for the whole force employed.

COUNTRY.

The theatre of operations was situated in Eastern Westphalia and the adjoining portions of Lippe, Brunswick, Hanover, Waldeck, and Hesse Nassau. It reached as far as Pymont in the north, and to Arolsen and Immenhausen in the south.

The western boundary was formed by the Egge Mountains—a prolongation of the Teutoburger Wald—of which the highest peaks stand some 1,400 feet above the sea, and whence the ground slopes eastward to the valley of the Weser. This river runs through the north-eastern corner of the manœuvre area, the banks being from 200 to 300 feet above sea level.

The valleys are winding, and the intervening country hilly and broken, and covered with numerous woods of oak, pine, and beech. The soil is rich and the chief products rye, wheat, oats, and potatoes. There are few isolated farms and the villages are large and well built. The country generally was well suited for all three arms.

Two railway lines run along the eastern and western boundaries of the area, and four lines traverse it, running roughly east and west. These lines were used, not only for bringing up reinforcements on the first day of the operations, but also to supplement the transport and supply columns. The roads, unfenced but occasionally flanked by big ditches, are generally narrow but in good condition.

The weather was fine and cool; on the third day a thick mist covered the country till about 9 o'clock.

NATURE OF OPERATIONS.

General Situation.—A Red Army (imaginary) was defeated by a Blue Army (imaginary) on the 5th and 6th of September, between Dülmen and Lünen (20 miles south-west of Münster) and forced back on the Teutoburger Wald.

The "A" Cavalry Division (Blue) reached Lippstadt on the 7th September, and ascertained that the Red left wing had retired through Hamm and Widenbrück. The VIIth Army Corps (Blue) was brought up by rail from the Rhine, and, covered by the "A" Cavalry Division, which was

placed under the orders of the corps commander, commenced to detrain early on the 8th, having received the order to operate against the Red flank and rear.

Reinforced from beyond the Weser, the Red Army determined to offer battle on the line of the Teutoburger Wald. The Xth Army Corps and "B" Cavalry Division, coming up on the left flank, received orders to attack the troops detraining near Warburg.

NARRATIVE.

9th September.

The line of the Nethe being the objective for both sides, the opposing forces came into contact near Natingen and Hampenhausen at dawn. The Blue advance was checked at the former village, but the Hampenhauser Bescg was temporarily occupied. Late in the day Red reinforcements reached Brakel, and Blue was forced to retire to the line Peckelsheim-Natzungen, the Red forces pursuing as far as a line running roughly east and west through Erkeln.

10th September.

An unsuccessful attempt was made by Blue to seize Hampenhausen during the night, and to develop an attack on Natzungen through Frohnhausen. This force subsequently retired to a defensive position on the line Hohenwepel-Daseburg, followed by the whole Red army.

11th September.

The Red commander launched his attack against the Blue left flank. Hohenwepel was taken, and the attack was temporarily checked at Dössel. After an unsuccessful counter-attack by Blue, the whole of that force commenced a retirement to the line of the Diemel, when at 10 a.m. the manœuvres were brought to a close.

METHOD OF CONDUCTING THE MANŒUVRES.

No change was made this year from the method of conducting manœuvres employed heretofore, which has been described in the "Reports on the Manœuvres of Foreign Armies" of previous years, with the exception that the *Kaiser-Tage* and the manœuvres proper were separated by a week's interval, during which time the Emperor attended the Naval manœuvres.

The control of the operations (*Manöver-Leitung*) was again vested in His Majesty the Emperor as Umpire-in-Chief, assisted by his Military Cabinet, the Chief of the General

Staff (General of Infantry von Moltke) with a staff of 22 officers, the Minister of War with a staff of 3 officers, and an Umpire Staff consisting of 84 officers.

The Red force wore brown helmet-covers with the number of the regiment in red.

Signal balloon.—The usual signal balloon was flown at the commencement of operations, by a section of the balloon battalion, with a streamer to which were attached 6 cones. It was noticed that it took about 15 minutes to inflate. The various signals made from this balloon are as follows:—

- 6 cones to streamer - Operations in progress.
- 1 ball to streamer - "Das Ganze Halt" ("Stand Fast").
- 3 cones and 1 ball to "Das Ganze Marsch" ("Carry on"), streamer.
- 2 balls to streamer - "Abrücken" ("Dismiss").

Crops.—The absolute disregard for standing crops, still uncut owing to the late harvest, was most noticeable. Troops moved through them, where occasion demanded, without compunction. Whole fields of wheat, oats or rye were laid flat by cavalry charging. Infantry firing lines took cover from view, the heads of the men just appearing above the waving ears. In some instances batteries of artillery actually unlimbered in standing corn, the tops of the gun wheels being visible, and employed indirect fire. Compensation for damage done is paid on the spot by a committee detailed to assess and compensate for damages, the value of all crops in the theatre of operations being assessed before the manœuvres commence.

REMARKS.

Staff.—The staff arrangements were as usual excellent, and absence of confusion was most noticeable.

Maps.—All officers, non-commissioned officers, and a proportion of the men were provided with maps. For officers these were pasted on linen and folded so as to be easily carried. Those for the men were on paper and were obtainable in villages and towns at a cost (to the man) of 10 pfennige (one penny).

Concentration and dispersal.—An innovation is believed to have taken place this year in the actual detraining of large bodies within the area of operations after the manœuvres had commenced. The Red 17th Division arrived from Mecklenburg, the first train reaching Hanover at 12.30 a.m. on the 9th September, and the remainder of the troop trains following at half-hour intervals. By 2.30 p.m. the whole of the infantry of the division, roughly 9,000 men, had, it is stated, detrained near Hörter. The Blue 14th Division arrived from the Rhine

and detrained near Warburg between 4 a.m. and 5 p.m. the same day (9th September).

According to the press, the VIIth Army Corps was moved into the manoeuvre area almost entirely by train and as follows:—

7th September:—33 trains, 19,700 all ranks, 3,000 horses, 200 vehicles.

9th September:—28 trains, 18,600 all ranks, 2,800 horses, 120 vehicles.

At the conclusion of the manoeuvres, the entraining of the infantry of the VIIth Army Corps was carried out in the manoeuvre area and they were moved to their stations on the 11th and 12th. The move of the Xth Army Corps was delayed for a day. In all cases the cavalry and artillery did one or two days' march before entraining.

The ordinary passenger traffic was not interfered with to any great extent, during the manoeuvres, and the great excess of traffic due to troop trains had only the effect of making ordinary trains very little late.

Extra temporary sidings were made in some instances.

The three arms combined.—The Imperial manoeuvres this year gave a less favourable impression generally than those of the IIIrd, Vth and VIth Army Corps last year, and their unrealistic nature was very noticeable. As regards the infantry this unreality may be accounted for perhaps by the apparent indifference of all commanders as to the manner in which their troops were brought on to the field, provided they reached it, and again to the German system of shock tactics, where masses of troops with fixed bayonets are hurled against each other with little or no artillery preparation, the side which can throw the greatest number of men into the firing line, however dense the formation, securing the verdict, thus necessitating the supports and reserves being brought up without regard to the formation in which they happen to be in. Extension of the firing line was seldom to more than two paces, and generally less, and was far too thick for men to use their rifles properly, being sometimes, when reinforced, 3 or 4 deep owing to want of space. In open country under close fire the supports followed the firing line, in line, shoulder to shoulder at about 50 or 100 paces distance. In close or undulating country they followed in columns of sections.

It is the opinion of a British General officer who attended these manoeuvres; that when German troops are not hustled on to the field, but are given reasonable time to develop their attack, their methods are well worth studying. According to the lights of British tactics their formations are too dense and their losses in action would consequently be great; but even

then, with their system of throwing every available man rapidly into the attacking line, what was left of a unit would stand a fair chance of breaking through an enemy's defence, and a really good chance if the ammunition of the opposing side was running low. Their discipline is so good that, with their numbers and the close support of their guns in the attack (provided *they can stand the losses* which must occur) they would, in the first few engagements, in all probability defeat any troops opposed to them who adopt wide extension and loose formations.

The general impressions gathered from the tactics employed were:—

- i. Holding attacks are vigorously pressed.
- ii. Main attacks are made concurrently against front and flank; counter-attacks seem to be generally frontal.
- iii. Guns are all brought into action and never kept in reserve; they are used in masses and employ direct fire if possible.

The criticisms on these manœuvres by a German military authority, which he sums up in a statement that "strategy was conspicuous by its absence and the tactics remarkable only by their respectable old age", are unusually severe.

At headquarters however, the marching of the infantry, the general handling of the artillery and technical troops, and the leading of the commander of the Xth Army Corps all came in for special praise, as did also the work of some of the divisional cavalry. The indifferent leading of the cavalry divisions, however, and the lack of initiative on the part of their leaders are said to have been severely criticized.

At the critical moment, on the 9th September, the six regiments, with guns and maxims, of the "B" Cavalry Division were inactive at Erkeln, and the situation was saved only by the 37½-mile march of the 74th Infantry Regiment of the 19th Division from Pymont to Brakel.

The only infantry work which seems to have been found fault with was the night attack on the 9th-10th September on Rothe village. Apparently, when dawn broke, several units had lost their way, and were firing on their own friends. The Director of Manœuvres is said to have expressed himself against the repetition of such attacks save in very easy open country, and, to quote his words, "all that can be done in the dark, as a rule, is to bring the troops close up to the point of attack and wait for dawn."

Infantry.—It is reported that all the infantry battalions were brought up to a strength of 800 bayonets, as was done last year, by the calling up of reservists. These joined on the 17th of August in order to be given time to get a little

into condition, as well as to be trained in accordance with the new regulations, and to be given some practice on the ranges. Except from the point of view of age there was little to distinguish between them and the serving soldiers.

Taken as a whole the German infantry are level and sturdy in appearance, and capable of sustaining great fatigue brought about by carrying a heavy weight and long marches. The 74th Regiment of the 19th Division having detrained at Pymont at 2 a.m. on the 9th September from Hanover, performed a march of 60 kilometres (37½ miles) to Brakel, and went into battle at the end of it, and although it was reported that it was as much as the officers could do to prevent all the reservists falling out, and that quite half had actually done so, very few men were seen to leave the ranks, though many sufferers from sore feet were observed toiling doggedly on, possibly as much from fear of the disciplinary consequences involved by falling out as from *esprit de corps*.

During the whole of the operations the want of intelligent expression and the stolid uninterested look on the men's faces were most noticeable, and it speaks well for the high state of discipline obtaining, that such precision of movement, and mechanical and apparently correct aiming of the rifle and adjustment of the sights are produced.

Infantry tactics.—Initiative in subordinate commanders is very marked. An attack once launched was carried out by battalions, companies and even sections gaining ground wherever opportunity offered without further orders from the supreme commander.

Company commanders complain that their commands are liable to get out of hand if too widely extended, and even the normal extension laid down, of two paces interval, seemed to be rarely adopted. The advance was carried out systematically by rushes of generally one section of a company at a time, the other two sections covering the advance with their fire. Supports and reserves were moved forward in any formation thought most suitable by the subordinate commander. In some instances the formation of column of fours was adopted even when under effective hostile rifle fire. During the encounter battle repeated instances occurred of bodies of infantry in dense lines charging each other in the open, when within assaulting distance. It seemed customary that when one line of infantry rose to the assault, the opposing line should do the same thing. Only isolated cases of infantry receiving an assault with increased volume of fire were noticed.

In the attack on a position the firing lines were gradually reinforced to their utmost capacity before the delivery of an assault, and packs were taken off and left on the ground, but

the prescribed flag signal (g g g) to the artillery to increase its range was not noticed.

Against cavalry charges the firing line and supports collected into groups of 20 or 30 men, and received the advancing horsemen with magazine fire standing up.

On the first day the fine discipline of the leading Blue brigade was very noticeable. It was opposed by a Red brigade and a cavalry division; the advance never checked, and when the cavalry, which were completely surprised, at last showed themselves, the Blue infantry were, in a few seconds, all formed up in half companies and sections, with flanks thrown forward or back, without confusion or noise. The cavalry had no chance and an umpire put a whole cavalry brigade out of action. Then, without loss of a minute, the Blue infantry continued their advance and secured the crest of the ridge before the Red troops could reach it: a fine piece of work which only troops in fairly close formation could have carried out.

As has been previously remarked, the German infantry are not seen at their best at these manoeuvres, but enough was witnessed to realize that much of their work is superior to our own. Their system of driving every attack home regardless of probable loss is to be commended. The umpires then decide and as a rule give it to the attackers.

Infantry fire discipline.—As regards the use of the rifle it was noticed that sights were carefully adjusted to suit varying ranges, and were lowered to zero after the command to cease fire. Aim was conscientiously taken, only visible targets being fired at. Infantry lying behind standing crops invariably stood up independently, at the moment of firing, and took deliberate aim at visible objects. Section commanders gave the object and range, as well as the nature of fire to be employed, the orders being repeated by the group commanders and passed down the line by the men.

Tiers of fire.—Infantry fire over the heads of those in front whenever the ground permits, but as far as could be ascertained nothing is laid down about the distance from the enemy, distance between lines of fire, and difference of level, the chief object in view being to develop as great a volume of fire as possible.

Entrenchments.—Entrenching in the attack was not noticed. In the defence, however, entrenchments for the firing line were executed according to the nature of the soil. Standing trenches where the ground was soft, and easily worked, and kneeling or lying trenches where reverse conditions obtained. Continuous lines of entrenchment were not employed. The work was carried out in sections on forward slopes or on a false crest, the covering of dead ground

being always very carefully arranged for. The reserves were hidden either in folds of the ground, or behind standing crops. The best use was not always made of the ground. In one case the trenches were dug about 400 yards in rear of a *chaussée* running parallel to the position, the embankment of which could have been utilized instead, and which, as it turned out, subsequently afforded good cover for the attackers.

The slope of the earth thrown out in front of the trenches was not sufficient to allow of the occupants using their rifles properly, and sometimes the parapet was not thick enough to be bullet-proof.

Traverses and sub-parapet shelters were seldom made. There was a berm for an elbow rest, but no head cover was provided; the men removed their helmets when in the trench, and rested their rifles on the parapet, gripping the butt near the toe with the left hand. The earth thrown out was covered with straw or turnip or potato tops to conceal it from view of the enemy.

Infantry scouting.—Scouting according to our ideas, except for the natural instinct of the men of the *Jäger* and *Schützen* (Rifle) battalions in wood and field craft, is not understood, nor are men specially trained. Ground scouts seem to be quite unknown, and scouts are not used independently, nor to keep touch between various units; nor do they cover an advance or a retirement. It was understood that infantry look entirely to the cavalry to discover the whereabouts of an enemy, and to send back word by telephone or telegraph. The possibility of small bodies of an enemy passing behind the cavalry and so causing annoyance, does not seem to be considered.

Infantry equipment.—Dismounted officers carry a small valise with the great-coat rolled over it, but no haversack. Their sword scabbards are blued like a rifle barrel.

Field-glasses.—The field-glasses, which are carried by all officers and non-commissioned officers, are worn without a case round the neck, and have a small leather cover which slides down on to the eyepieces, and keeps them clean and dry. The glasses are kept steady by a leather tab which is fastened between the barrels of the glasses, and buttons on to a tunic button.

Cuff-pocket.—The cuff of the frock-coat is very deep and serves as a pocket for carrying maps and papers.

Infantry range-finder.—A one-man range-finder, apparently on the Barr and Stroud principle, probably a "Hahn," said to be new, was observed in the firing line of infantry on the defensive in trenches. As it was not possible to examine it, and no information in its connection could be obtained, details are not forthcoming.

Riding of Infantry Officers.—A very noticeable feature of the infantry officer is his ability to ride well. All company leaders are mounted and few cases of bad riding were seen. Here again the German system deserves imitation. Every winter, an officer of cavalry is attached to an infantry regiment to instruct all officers below the rank of captain in riding, and horses for the purpose are provided from a mounted unit.

Cavalry.—The approximate strength of each cavalry regiment taking part in the operations was 700 sabres, or about 140 sabres per squadron.

The cavalry did not show to advantage, and it is reported that the lack of initiative of its higher leaders was severely criticized at the conference on the last day.

The highly trained state of the horses, however, enables the arm, in spite of the moderate riding of the majority of the men and some of the officers, to manoeuvre with precision, and the task of the squadron leaders is facilitated by the mechanical and automatic manner in which their commands answer to their orders and signals.

Cavalry tactics.—The cavalry divisions present on each side were employed as independent cavalry on one flank or the other of their respective forces, or as strategic advanced guards. The divisional cavalry performed the protective rôle for their own formations, and did this exceedingly well, though it must be remembered that each division had five squadrons assigned to it, and not three, as it would have in war.

The Germans look for great results from the use of masses of cavalry in attacks upon all arms, but the leaders are apparently slow at grasping a situation and in quickly moving their commands when they have done so.

Charges of cavalry *versus* cavalry took place, but were not witnessed. In a case on the 9th September, where the Red cavalry division charged hostile infantry, the division was moving to a flank in column of sections down a shallow ravine, when, in the absence of patrols, it was surprised by a brigade of Blue infantry suddenly crowning the heights on its left and pouring a hot fire into the moving mass of horsemen in front of them. The squadrons were slowly wheeled into line to the left, and executed a slow charge in echelon of squadrons in a most disjointed manner, in some instances with quite $\frac{1}{4}$ mile distance between them.

The umpires placed half the division out of action for the day, proving how useless they considered such an attack when unaccompanied by the necessary factors of success, namely: surprise, rapidity, and a simultaneous direct or converging attack of every possible mounted man.

In the report on the German Manœuvres in 1906 it was stated that the cavalry were taught to ride over infantry lines in action. This does not, however, appear to be everywhere the case, and squadrons pull up within 100 metres of the firing group of infantry. Skirmishing lines are taught to form groups on the approach of cavalry, which are instructed to pass between the groups and to attack the supports and reserves. It was understood that last year there was some wild riding on the part of the cavalry, who were seriously censured for being unable to control their horses. No case of cavalry riding over infantry was seen, but on two occasions it was noticed that squadrons were led through the gaps between infantry groups and charged the supports.

The employment of dismounted fire-action was seen once on the 9th September, when a regiment of dragoons of the Red cavalry forced a Blue infantry brigade, approaching from the direction of Warburg, to deploy against the villages of Hampenhausen and Natingen. Two squadrons were used, and these sent 50 per cent. only of their men into the firing line. All the horse-holders dismounted and lances were grounded before the firing line extended. The dismounted men bunched together too much on the skyline, and the horses, though well concealed, were crowded together instead of being sprinkled about in groups, each behind their own riders.

Cavalry scouting.—As regards scouting, information is sought for by officers' patrols as a rule, which frequently expose themselves to view and fire. They also execute movements which could never be done on service, such as riding up to occupied positions and bodies of troops, without paying any heed to the fire directed at them.

The best scouting work was done by the divisional cavalry, who screened their own infantry in a very practical way.

Cavalry equipment.—A British cavalry officer present at the manœuvres was of opinion that the saddle and saddle blanket are both superior to those in use in the British service, and that the blanket is larger and much thicker, serving as a better saddle pad and as a warmer covering at night.

Folded into four under the saddle it prevents all chances of sore backs, or rubs from the carbine bucket or sword. The wallets are most serviceable.

The method of carrying the corn sack on the top of the rear pack seems good; it does not weigh the saddle down on one side or the other as is the case with the nosebag in the British army.

The cavalry soldier does not carry a *tente d'abri*, but when bivouacking lies on the ground rolled up in his blanket.

Picketing pegs and ropes are not part of the equipment, but every trooper carries a short piece of rope hung over the carbine bucket. When these pieces of rope are joined together, one long rope is made, which passes over two long stakes carried in one of the transport wagons and forms the picket line to which the head ropes are attached.

It is understood when the troop horse is fully equipped in marching order that the animal carries about 100 lbs. without the man and, allowing 10 stone for the latter, the total weight carried is about 18 stone.

Artillery, Field and Horse.—All the field and horse artillery of both Army Corps, with the exception of the field howitzer batteries, were armed with the new '96 n/A, i.e., *neuer Art* (new pattern), quick-firing equipment. Every battery had six guns, but no wagons, and when in action two or more baskets of ammunition were laid by the side of each gun, and the limbers were withdrawn under cover.

Artillery tactics.—The fire tactics of the arm have, as far as could be seen, not been greatly modified since the introduction of the new gun-recoil mounting. Indirect laying is very rare and is not encouraged; even the regulations lay down that the advantages of covered positions must be almost always sacrificed if decisive effect is to be obtained. Indirect laying with aiming posts, of which one is carried on each gun, and clinometer, was used to some extent against stationary artillery targets, but, as far as could be seen never against infantry. In one instance aiming posts were used owing to a field of standing corn obstructing the line of sight. The employment of the portable *Richt-Kreis* (Director), now said to be in use with the field howitzer, was not observed.

On the whole the artillery were well handled and concealed. The Germans fight their guns at distances they can observe from, but the principle of closely supporting the final attack where the ground permits of it, is overdone at manœuvres.

Theoretically, German field artillery comes into action simultaneously, massed in great strength early in the fight, in order to form the framework on which the infantry attack is developed. It is supposed to change position rarely and to rely mainly on its long range-fire for meeting the varying phases of a fight. As a matter of fact, at these manœuvres,—except in the case of the guns of the VIIIth Corps on the 12th of September at Dössel, which were used as position artillery and massed by brigades—the field artillery generally came into action piecemeal—often by single guns—and changed position frequently, the light howitzers being employed, as a rule, exactly like other field guns.

A German brigade must not be confused with the British brigade or German *Abteilung*. It consists of 2 regiments = 4 *Abteilungen* = 12 batteries = 72 guns.

Cases of guns being exposed on the skyline when in action were not of such frequent occurrence as one has been led by previous reports on German manœuvres to suppose, but in some cases limbers were much exposed and in faulty formation. For instance a case of the limbers of a battery being placed behind their guns with horses' heads facing to a flank exposed to hostile fire, was observed.

Guns as a rule were well concealed, just behind the reverse slope of a feature, and laid direct. The position, however, was invariably given away by the flash of discharge which could be easily distinguished up to 5,000 yards. After locating the position by the flash the tops of the wheels could usually be detected through glasses. The flash is said to be less bright when the gun is fired with service charge and shell.

Fire discipline appeared to be carried out quietly and the detachments kept their positions, sitting on the ammunition baskets where these were handy. Officers were noticed, on occasions, to collect on the flank of a battery and so to expose themselves unnecessarily.

Gun pits.—Field artillery did not entrench in the attack, but gun pits of the same nature as reported on page 146 of "Reports on Foreign Manœuvres, 1906," were prepared in the defence, the depth of which seemed to vary according to the position in which each particular gun was placed. In the case of one battery in action behind a field of standing wheat, only sufficient earth was excavated to form a parapet in front of each gun.

Artillery telephone equipment.—All brigades (*Abteilungen*) have now been issued with a field telephone equipment consisting of 4 instruments and 4 rolls of wire, each roll containing 500 metres (550 yards), 2,200 yards altogether. Detached batteries are provided with one instrument and one roll of wire from the equipment. A brigade was seen in action with batteries in echelon at about 50 yards distance from each other. Each battery was connected with the brigade staff by telephone.

Application of the brake in horse artillery.—The details of equipment and description of the gun and carriage are so fully described in the Appendices to the translation of the "Drill Regulations of the German Field Artillery, 1907," recently issued by the General Staff, that it would be superfluous to repeat them here. It was noticed, however, that the system of applying the brakes in the horse artillery, by the wheel driver pulling the cord attached to the cantle of his

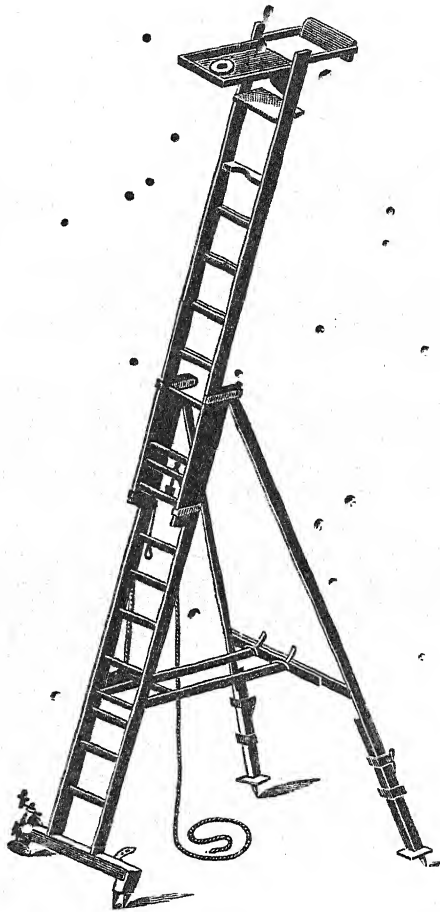
saddle, is ingenious and effective, though it must be argued that the man has quite enough to do with controlling his horses when descending a hill, without having to pay attention to the adjustment of the brakes.

Heavy artillery.—Each of the two army corps had four batteries, of four 15-cm. howitzers each, attached to it. These four batteries formed a battalion and were manned by the foot artillery: in the case of the VIIth Army Corps by the 7th Foot Artillery Regiment, and in the case of the Xth Army Corps, by the 1st Battalion of the Foot Artillery Regiment of the Guard. On the 11th September the howitzers of the VIIth Army Corps were employed astride of the high road south of Dössel, and those of the Xth Army Corps were near Grossender. The part these guns take in field operations is the support of the field artillery against hostile artillery, and the preparation of the attack against *points d'appui* and entrenched positions.

Artillery observation ladder (see figure overleaf).—To each heavy battery and each battalion staff is allotted an observation wagon. This wagon, horsed by four horses, is on the limber principle, and, besides other stores, a telescopic ladder is carried on the wagon body, parallel to the perch and resting on 5 rollers. The ladder consists of an upper and lower ladder with a ground piece. The ladders are connected to one another, so that they can be drawn out, by 2 upper and 2 lower guide bands. The upper pair of bands are bolted to the lower ladder and serve also to take the struts which pivot on bolts passing through the bands. These struts have feet which can be drawn out to adjust their length. Their lateral splay is limited by a cross piece, and their splay with respect to the ladder, by stays.

The upper ladder is hoisted by a rope attached to its lowest rung, which passes over a pulley on the top rung of the lower ladder. The upper ladder is then prevented from slipping down by two hooks which can be adjusted to any rung and which take the strain off the rope. There is a seat on the top rung of the whole contrivance with a table attachable by hooks to two large head bolts in the ladder sides. In the centre of the table is a hole over which is bolted a wooden block forming the socket for the telescope pillar. This latter is a bronze tube with transverse steel trunnions to take the telescope. Loose on the tube are a clamping band and ring. The band is screwed at the bottom into the clamping ring by which the pillar is secured to the table. When required for use the clamping band is first screwed into the clamping ring, the pillar is then set to the height of the observer's eye and secured by a nut.

The batteries were not seen in action, consequently the use of the observation ladder was not witnessed.



ARTILLERY OBSERVATION LADDER.

Engineers.—The pioneer battalion attached to each army corps was distributed by companies to each division, one division having two companies.

One of these companies was noticed being employed as infantry in the firing line of a defensive position, and a certain number of pioneers, distinguishable by white metal buttons and the long entrenching tool with a knob at the end instead of a cross handle, carried on the left of the valise, were attached to each company of infantry in the defence, presumably for the purpose of supervising the construction of entrenchments.

Machine guns.—A machine gun section (battery) of six guns was attached to each of the cavalry divisions and to one infantry division in each force, and they were employed under the orders of their respective divisional commanders. These units have been already fully described on page 98, "Reports on Foreign Manœuvres during 1905," and no change has been made in their equipment or use.

The guns were sometimes fired from their sledge mountings on the ground and sometimes on the carriages. Where an immediate change of position was in contemplation the latter method was usually adopted.

In the defensive position occupied by the Blue force, on the last day of the manœuvres, a battery was noticed in action in the infantry firing line. Machine guns were constantly used for covering retirements or repelling assaults.

It was understood that experiments were to be tried this year with pairs of machine guns allotted to infantry battalions mounted on special mountings and drawn by two horses, but nothing was seen of these.

Wireless Telegraphy.—A wireless telegraph detachment (*Funken-Telegraf-Abteilung*) as described on page 182 of "Reports on Changes in Foreign Armies during 1906," was allotted to each army corps. No other portable wireless telegraph equipment was seen.

Field telegraphs and telephones.—Detachments from the 1st, 2nd and 3rd Telegraph Battalions were reported to have been at work for a fortnight before the beginning of the manœuvres supplementing the normal communications and connecting up the whole of the area with the headquarters of the director of manœuvres at Höxter.

A telephone detachment, consisting of two wagons on the limber principle, for the transport of the equipment, was attached to each of the three divisions of each army corps and one to the corps troops. No details of this equipment are forthcoming, but it was noticed that a main station had been established at Düsseldorf on the last day of the manœuvres, in the very centre of the Blue defensive position, at which four instruments were being worked, the wires from which appeared to lead towards the flanks of the position. It was understood that this equipment is experimental, and it was not intended to be examined.

A corps telegraph detachment was attached to each corps, and it was noticed that the equipment was in use.

Signalling.—The means employed for communicating between infantry in the firing line and the supporting artillery, as also between battalions of infantry in regiments and brigades, and their commanders, is flag signalling as laid down in the "Regulations for the Use of Signal Flags" of

March 1906. Each company and battery trains three men, and each battalion and artillery brigade (*Abteilung*) two officers in addition. The instruction does not appear generally to have made very great progress, and no signalling by Morse code or semaphore was seen at these manœuvres.

Half a field signalling section was allotted to each cavalry division. These carried the acetylene lamp signalling equipment described on pages 233-235, "Reports on Changes in Foreign Armies during 1905," on six horses.

Heliographs were also seen at work, but only at a distance.

Balloons.—The usual sausage-shaped captive observation balloon was in use, one being allotted to each army corps. Major Gross, the commander of the balloon battalion and inventor of the airship which bears his name, was a guest of the Emperor, but his airship was not employed during the operations.

Searchlights.—The searchlight section attached to the VIIIth Army Corps had two projectors mounted on vehicles consisting of body and limber, and drawn by two horses. The projectors, which appeared to have a diameter of 60 cm. (24 inches), were mounted in trunnions at the end of a girder beam. This could be raised on a pivot not far from the trail eye. In the travelling position, the beam and projector rest on the wagon body and in action the axis of the projector could probably be raised to a height of some 9 feet above the ground. The limbers had seats for men, but it could not be seen what the boxes contained, possibly the dynamos. No steam or oil engines were seen. It is reported that this apparatus is an improvement by Zeiss on the Vial equipment, which has been experimented with in France.

Medical.—The principles to be followed in the executive sanitary work of the combatant officer in the field are laid down in Section E of the *Kriegs-Sanitätsordnung*, but it is thought that less is done for his education, in this respect, in the German army than in the British, and probably for the following reasons:—

- (1) Every unit has its own permanent medical officers.
- (2) The troops practically never leave their own country, and the sanitation of the soldier is swallowed up in that of the civilian population.
- (3) The time of the German combatant officer is very fully taken up with his more strictly military duties.

Experience in the operations in German South-West Africa showed that sanitation on active service is a matter about which the ordinary German officer knows nothing and cares little. At any rate, during the manœuvres in question,

there was a very striking absence of proper sanitary arrangements in the bivouacs that were seen. No latrines were dug, and the bivouac grounds were left covered with empty tins, food, refuse, bottles and firewood, no apparent effort being made to clean them up.

Water.—No special orders are issued as to the cleansing of water bottles and nothing is done during the manœuvres to provide pure water for the troops, or to prevent ordinary water from being drunk. Whilst a march is in progress villagers place buckets of water in the village streets, into which the men dip their drinking cups as they pass, but no one seems to ask or care where the water comes from.

As regards animals, the lack of watering arrangements may be gauged by the fact that on one occasion the local fire engine was seen pumping water into a village trough for horses to drink.

Supply.—The supply depôts for the Blue Army were in Manrode, Liebenau, Ossendorf, and Bonenburg, besides which it was stated there were 10 *abattoirs*. Field bakeries were established near railways, and the bread sent by train from them to the various supply depôts. These were mobile in so much that they could be prepared in 12 hours, but when once established they were not moved. One at Pymont baked 18,000 loaves a day.

Rations.—The system of rations on these manœuvres was exactly the same as for field service. A tinned ration in cylindrical tins was used. This contained beans and bacon, *sauerkraut* and sausage, potatoes and beef, &c. It was said to be more popular than fresh meat and vegetables, especially than the fresh-killed meat.

Travelling Kitchens.—Four travelling kitchens were issued for trial during the manœuvres to the 3rd Battalion of the 55th Regiment, as well as, it is reported, to the 2nd Battalion of the 74th Regiment. In these vehicles the limber carries one day's rations for a company 250 strong. The body consists of a big boiler in the centre surrounded by an oil jacket, holding rather over 200 litres (44 gallons), and used for soup, stews, &c. On the left side are receptacles for fuel, and on the right a rectangular-shaped boiler holding 70 litres (15½ gallons), and intended for coffee. The grates are in rear, in the centre, and on the right side, but both communicate with the same chimney. It was stated that the time required to cook a meal sufficient for a company at war strength is one-and-a-half hours. Wood is the fuel used, but the amount was not stated, and care has to be used with the ration to make it suffice. The vehicles are painted the same grey-green colour as the guns.

Cyclists, motors, and transport.—Nothing was seen of the cyclist companies attached to each force, which were an innovation at these manœuvres. It is stated they were mostly employed on the flanks of the two forces.

A new grey-green experimental uniform was worn by these units, the tunic having a deep turn-down collar, which can be raised to cover the ears, a belt round the waist, and brown leather buttons. It is reported in the press that the whole army is to be gradually clothed in uniform of this colour, the present distinguishing facings of the various branches being retained.

Motor-cycles, locally termed *Benzinesel* (Benzine donkeys), to the number of 20, ridden by volunteers, were employed for carrying messages, and were attached to the various staffs. They were very much *en évidence*, and were constantly clearing troops off the road to make way for them. Numerous benzine stations in charge of non-commissioned officers were distributed about the country to supply them and the automobiles, of which some 60 belonging to the Volunteer Automobile Corps are believed to have been used. These latter were more used by staff officers during the actual operations, and less monopolized by grooms and orderlies than last year.

Nothing was seen of any power traction, but it is believed that great efforts are being made to provide each army corps with a mechanical transport supply train.

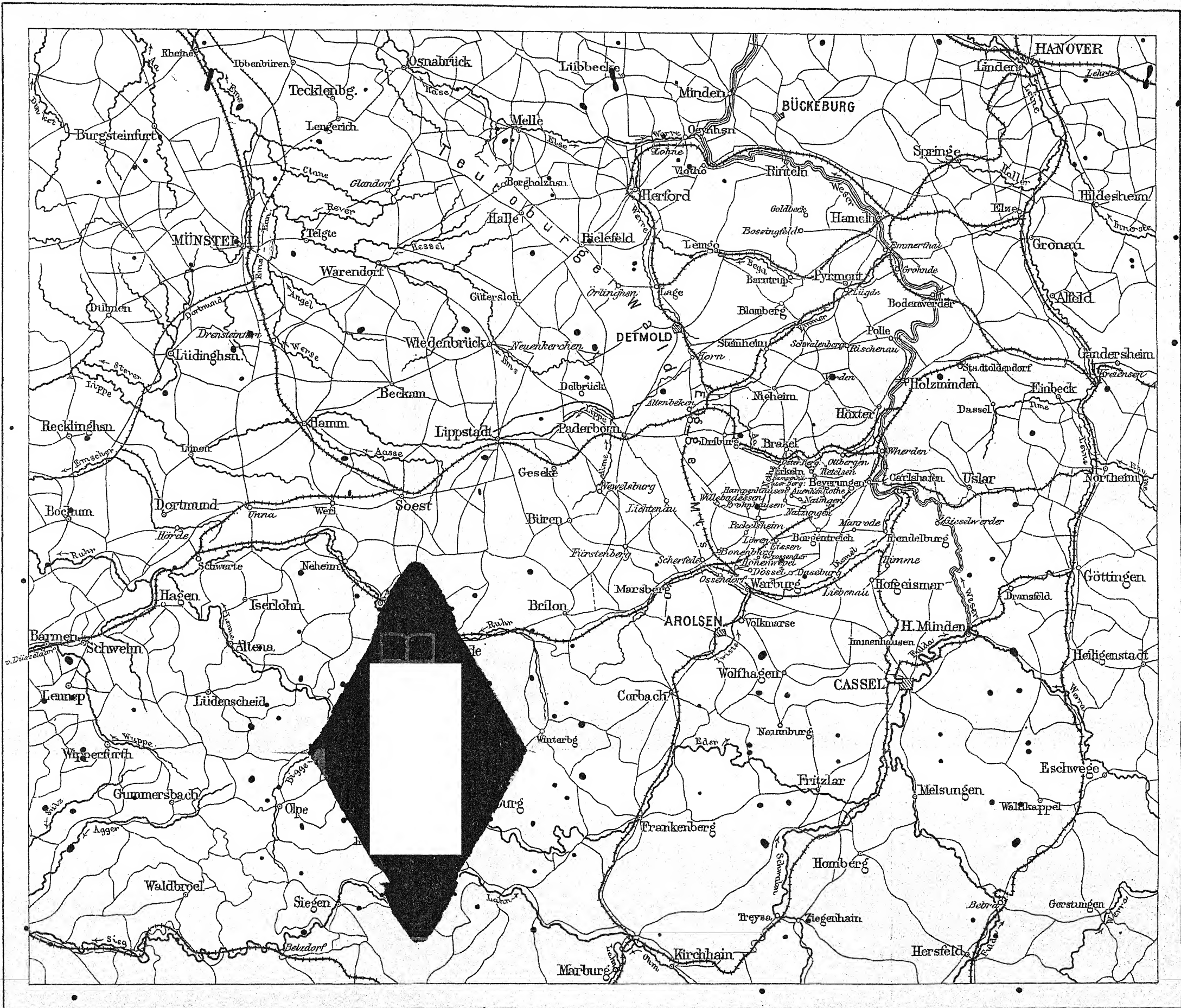
Horses.—The quality and condition of the German heavy cavalry horse are remarkable. The horses appear to be better bred and better trained than those in the British service.

A most noticeable feature about them is the strong band of muscles on their loins. With a well-ribbed horse, this presents little difficulty, but even the long-backed horses and the few that were seen with defective conformation showed this remarkable muscular development. No long marches performed by the cavalry were witnessed, but of the 100 horses detailed for the use of guests not one was noticed to be distressed or even sweating behind the saddle, and yet the work they performed was a high test. They left their lines at midnight, and marched 10 to 13 miles to meet the special train. They were then ridden at a fair pace for six or seven hours, and again marched back 10 to 13 miles to their lines. During this time they received neither food nor water, and yet they showed no loss of condition or spirits after three days of such long hours under the saddle.

The light cavalry horses seemed to be well bred but not of sufficient stamina to withstand the wear and tear of active service.

The condition of the artillery horses was equally noticeable. They are of an inferior stamp to the artillery horses in

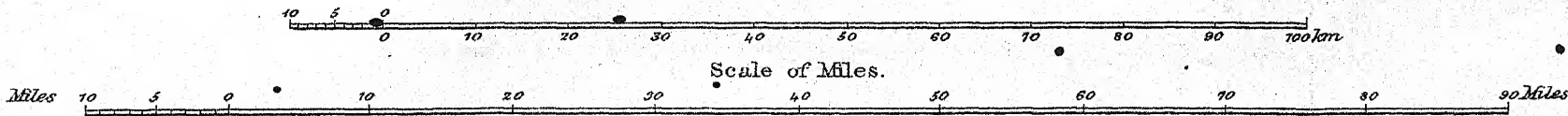
GERMAN IMPERIAL MANŒUVRES 1907.

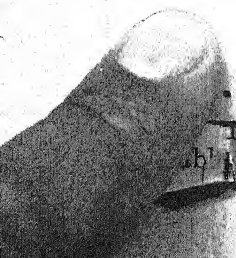


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to the artillery horses in

the British service, but at the end of a long day over deep country they appeared to be fresh and had not sweated.

Every endeavour was made to discover how this remarkable condition is produced. It is attributable to the systematic training given to all remounts, to the slow careful work during the first year, and to the long steady work during the second year, before the remount is put into the ranks. No doubt this two years' steady preparation of the animal is responsible for much of this condition.

Neither officers nor men of the German cavalry appear to be natural horsemen, but there can be no doubt that their system of instruction is excellent. On their well-trained horses they are able to manœuvre very steadily and, as already remarked, their system of horse-mastership must be very good.

GERMANY.

Part II.—Army Corps Manœuvres.

A.—XVIIITH ARMY CORPS.

The manœuvres of the XVIIIth Army Corps took place in Ober-Hessen and Hessen-Nassau between the 6th and 18th of September, both days inclusive.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

The entire XVIIIth Army Corps composed of the 21st and 25th Divisions took part in these manœuvres. The 21st Cavalry Brigade was, however, not present.

A reserve battalion was added to the 166th Infantry Regiment of the 42nd Brigade and $\frac{1}{2}$ battalion of the non-commissioned officers' school was attached to the 41st Brigade.

A battalion of 15-cm. heavy field howitzers, a telephone section, and $\frac{1}{2}$ corps telegraph section took part from the 16th onwards.

During the manœuvres of the two divisions of the army corps against each other, from the 16th to 18th September, the opposing forces were as follows:—

Red Force.

Commander:—Lieutenant-General von Strautz.

25th Division (49th and 50th Infantry Brigades).

24th Dragoons (from the 25th Cavalry Brigade).

25th Field Artillery Brigade (25th and 61st Regiments).

$\frac{1}{2}$ battalion heavy field howitzers.

2 companies 21st Pioneers.

1 telephone section.

Total.—12 battalions, 5 squadrons, 12 field batteries, 2 heavy batteries, 2 companies pioneers, and 1 telephone section.

Blue Force.

Commander:—Lieutenant-General von Gayl.

21st Division (41st and 42nd Brigades).

3 squadrons 23rd Dragoons (from the 25th Cavalry Brigade).

21st Field Artillery Brigade (27th and 63rd Regiments).

- $\frac{1}{2}$ battalion heavy field howitzers.
- 2 companies 21st Pioneers.
- $\frac{1}{2}$ corps telegraph section.

Total.—12 battalions, 3 squadrons, 9 field batteries, 2 heavy batteries, 2 companies pioneers, and $\frac{1}{2}$ corps telegraph section.

A *mixed brigade* as under was attached to the Blue force for the 16th September and to the Red force for the 17th and 18th :—

- 166th Regiment and 1 reserve battalion (42nd Brigade).
- 168th Regiment (49th Brigade).
- $\frac{1}{2}$ battalion non-commissioned officers' school.
- 1 brigade (*Abteilung*) 63rd Field Artillery Regiment.
- 2 squadrons 23rd Dragoons.

Total.—5 $\frac{1}{2}$ battalions, 2 squadrons, and 3 field batteries.

COUNTRY.

The theatre of operations was bounded approximately by a line through Reichelsheim, Nidda, Büdingen, and Marköbel. The area was an excellent one for manœuvres. It is hilly in the north-east, where the foothills of the Vogelsberg rise, but the greater part consists of undulating country covered with meadows, cultivation, and patches of pine wood. The fields, mainly under potatoes, beetroot, corn, clover, and occasionally maize, are large, but cover is almost always available. The woods have few paths through them, and form a serious obstacle to cavalry and artillery, but are everywhere passable by infantry.

Streams intersecting the manœuvre area, though shallow, are by no means always easily fordable owing to the depth of mud at the bottom. The meadows in their vicinity are also frequently marshy and boggy, and the fields are generally bounded by hedges. The villages are solidly built, with good barns and outhouses in which numbers of men and horses can be close-billeted.

There had been heavy rain for many days, but at the opening of operations on the 6th the weather cleared, and, with the exception of Sunday the 15th, remained good to fair throughout the whole period. The roads were of course heavy at first.

NATURE OF THE OPERATIONS.

During the period of the manœuvres the Army Corps was exercised as follows :—

- | | | |
|----------------------|---|--------------------|
| 6th to 7th September | - | Brigade manœuvres. |
| 8th September | - | Sunday (rest day). |
| 9th September | - | Brigade manœuvres. |

10th to 11th September	-	Divisional manœuvres.
12th September	-	Rest day.
13th to 14th September	-	Divisional manœuvres.
15th September	-	Sunday (rest day).
16th to 18th September	-	Army corps manœuvres.

The general idea for the army corps manœuvres was that a Blue Army was retiring between the Vogelsberg and Taunus mountains towards the Kenzig river and was hurrying forward supports from Unter-Franken. Superior Red forces advancing from the Lahn river valley were pursuing.

NARRATIVE.

16th September.

Red advanced in one column *viâ* Steinberg and Mirkenfritz.

The Blue Mixed Brigade took up a position at Galgenberg. The 41st Brigade advanced in several columns, *viâ* Birstein, towards Wenings and deployed north-east of the latter village. The Blue commander expected the main body of the enemy to attack his right, but when he received reports that the whole of the Red force was advancing in only one column, he ordered an advance, and forced Red to retire through the forest. Further pursuit was stopped by the umpire staff issuing fresh reports.

Blue outposts were left at Schonhausen-Hirzenhain. The 42nd Brigade (Blue) reached the country round Straitberg.

17th September.

The Mixed Brigade was transferred from Blue to Red.

Blue.—The 42nd Brigade began fortifying a position Herzberg-Pfluchsberg early in the day, and the 41st Brigade fell back before the enemy's advance.

During the day the whole division entrenched itself from east of Hertzberg to Pfluchsberg.

Red.—During the above period Red advanced, *viâ* Wenings and Bindsachsen, and in the afternoon obtained possession of Keckenstein, Höheberg, and the hills north and north-west of Kefenrod-Wölferborn.

Night of 17th-18th September.

Operations continued all night with very little interval; Red occupied Wölferborn and Kefenrod with one brigade, and attacked the position, but was repulsed. Red's second brigade in the meantime worked round, *viâ* Michelau and

Lautenstein, and shortly before dawn the whole Red force prepared to make a final assault.

The manoeuvres were then broken off, and the Army Corps marched past on an impromptu review ground.

METHOD OF CONDUCTING THE MANOEUVRES.

The manoeuvres were uninterrupted with the exception of the 8th, 12th, and 15th September. The troops bivouacked three nights, and were billeted the remainder. The bivouacs were well arranged, but assumed rather too much the air of picnicking festivity. The billeting arrangements worked excellently. There never appeared any difficulty or disturbance; no picquets were required in the villages; the inhabitants always seemed pleased to welcome the troops, and the latter gave absolutely no trouble. As the troops bivouacked only three nights, supply depôts were not greatly used, but a certain number were instituted and connected with the columns by means of hired country carts, most of the regular transport of the XVIIIth Army Corps having been taken for the Imperial manoeuvres.

The necessity of damaging the crops as little as possible, and the lack of sufficient funds for compensation, presented a serious difficulty and hampered the operations. A special staff of officers assessed the damage done and investigated claims.

The large number of civilian spectators following the movements frequently gave away a position and went far to dispel "the fog of war."

The umpires worked well. The manoeuvres were conducted mainly with an idea of instruction for the men. When this fact is borne in mind it is more easily understood why situations are often permitted which seem quite impractical. Officers try, and generally with success, to make the manoeuvres interesting to the men. For this reason a day is seldom allowed to pass without the opposing forces coming in contact, and so raising the general interest.

REMARKS.

The three arms combined.—Great stress is laid on the value of the offensive. This perhaps would appear to be overdone, but German officers work on the plan that it is easier to learn prudence than dash on the battlefield. Initiative is strongly insisted upon, but no striking examples came to notice during these manoeuvres. Flank marches were several times made within effective rifle range without receiving much censure. Outflanking movements were

occasionally too extended and weak, and a small advanced guard was sometimes held to be more than sufficient to hold the enemy to his ground. The tendency seemed rather to ignore the offensive defensive, and counter-attacks were not much in favour; only one, that of the 42nd Brigade on the morning of the 18th, was ruled to have seriously affected the situation favourably for the defence. Columns converging on the battlefield against columns working on single lines were twice used, and in each case the result was considered favourable to the former. The timing of movements was generally good, but occasionally enough allowance was not made for an outflanking body to carry out its march, with the result that the holding attack was pushed forward dangerously soon.

The rule disallowing the taking of prisoners is undoubtedly sound in some ways. The object of the manœuvres being to teach the men; any period not actually so spent is wasted. But the rule has its drawbacks. Umpires cannot be everywhere, and great liberties were taken by patrols and reconnoitring parties, the artillery reconnaissances offending perhaps the worst in this respect.

Orders were always well drawn up, but were sometimes rather slow in being put into execution. This was especially noticeable on the first day of the army corps manœuvres, when a new direction had to be given to Blue.

Perhaps the strongest general impressions left on the mind after attending these operations were the following:—

1st. The remarkably close formations and short-range tactics still permitted. There appeared, however, to be considerable improvement in this matter, and in the movements of troops generally, towards the close of the manœuvres.

2nd. The excellence of the staff work, though still occasionally slow.

3rd. The national asset formed by the great and real interest of the civilian population in anything to do with the manœuvres. The troops are everywhere cordially received; spectators walk or drive miles at all hours of the day and night to look on, and they watch until the "Halt" sounds. Bivouacs are always crowded with civilians, and the movements and relative merits of leaders and sides are discussed, to the exclusion of other topics, in both cottage and *Schloss*. This interest is often a nuisance, but its value is also evident.

4th. The good effects of universal military training, both physically and morally; and, considering the shortness of time the men have been trained, the high standard of military knowledge attained. Many of the faults seen and mentioned in this report can be accounted for, when it is remembered

that for about half the men these were the first manœuvres, and that the other half had less than 2 years' service.

Infantry.—The physique and bearing of the infantry was excellent. After the longest march and most tiring day there were very few stragglers, and the march discipline was at all times good. At these manœuvres, if a force was below its correct strength an extra distance of the right length was allowed between units, and kept throughout the whole march so that the column should be of the correct length.

Singing is taught throughout the infantry in winter and forms a great help to the men on long and severe marches.

Short rushes are made in the attack, but there is still very little elasticity, and officers' movements are conspicuous.

Covering fire in the attack is fairly developed.

Sights are theoretically very carefully attended to, but in practice often escape notice. (The impression was otherwise at the Imperial manœuvres, *see* page 69.)

A great deal of noise prevailed in the transmission of orders in battalions, and indeed in most branches of the service. No system for replenishment of ammunition during an action could be discovered.

The reservists were good, and seemed to stand the wear and tear of the manœuvres well.

The small entrenching spade carried is fairly effective in easy soil. Entrenching, however, though some sort of cover is usually made on gaining ground, does not seem to be taken quite enough to heart.

In the defence trenches were generally well sited on the forward slope of the hill, and well concealed, but there was sometimes a good deal of dead ground in front.

Cyclist patrols were much used and did good work. Men are encouraged to bring machines and are allowed a small sum annually for their upkeep. No motor cycles were employed.

The uniform worn, especially the boots, seems unpractical. German officers say, however, that most of their men, at all events the countrymen, have been used to similar long boots all their lives, and prefer them. An additional advantage claimed for them is that they are easily and quickly pulled on or off without any lacing. The second pair of boots carried is similar to our "high low" pattern. Various new shades and cuts of uniform were on trial and the impression prevails that a light green tinge will be decided upon.

Cavalry.—Owing to disease amongst the horses of some of the squadrons their strength was considerably reduced. The reconnaissance, nevertheless, may be said to have been well done. The riding of both officers and men is good,

but the horsemastership is poor. (The impression was otherwise at the Imperial manoeuvres, *see* page 80.) The horses, mostly Prussian, are good, though perhaps rather light in bone. They are well trained and, as a rule, have good manners. The Prussian horse is at his best between the ages of 8 and 12. The officers are very well mounted, often on Irish and English horses. Only about five horses per squadron are clipped a year. No arrangement is made for extra rugs for them. No compressed forage is used.

Men seldom dismount and lead their horses, except down steep hills. The animals lost a certain amount in condition, but on an average kept very fit. They were however invariably under some sort of shelter at night.

The lance, which is a heavy one, is always carried in the hand, the idea being that in this way men become better able to use it when required. Troop after troop in line in two ranks, fairly close one behind the other, go over moderately high and wide regimental jumps in perfect order with lances at the trail without a single horse refusing.

The few small efforts at pursuit were poor and unconvincing. Fire action is often employed, but a large proportion of horse-holders are considered necessary. The men using their carbines post themselves in extended order.

Patrols, and indeed most of the cavalry, did not pay as much heed to concealment as is enforced with us at the present time.

Visual signalling was very poor. Each cavalry regiment has a telephone section, consisting of an officer and 8 men. The one noticed did good work for short distances.

Artillery.—The horses are light, but being fairly well bred, are said to stand a great deal of work. The average of the driving and riding was good; limbering up and unlimbering was rather slow. Gun pits were not very seriously undertaken.

Communication of orders seemed to work somewhat slowly. The smoke and flash of guns were visible at considerable ranges, but this may be attributable to the age of the ammunition used.

Positions chosen were generally good, and guns are not often moved during an action; reconnaissance of positions for guns was good, but reconnaissance of the enemy's position was sometimes carried out in full view at a range of 400 to 500 yards.

On two occasions guns opened fire about an hour before dawn when it was quite impossible to locate any target; this however was spoken of at the conference as a waste of ammunition.

Direct laying was never seen and indirect fire was always used. (The impression was otherwise at the Imperial manoeuvres, see page 73.)

Guns were never hurried forward in pursuit.

No guns were kept in reserve either in attack or defence, and they had no specially detailed escorts, the nearest troops being supposed to be responsible for them. On two occasions, however, they were left unprotected in most exposed situations.

Medical.—No latrines are dug near a bivouac; an area is mentioned to which men are supposed to go. On moving from a bivouac, a fatigue party is left behind to clear up. The straw and empty tins are sold to the villagers. When in bivouac, parties are sent to the nearest village or water supply with canvas buckets, fitted with wooden handles. According to information given, water-bottles are not cleansed in any particular way.

No company cooks were allowed, so that each man had the opportunity to learn to cook his own ration.

No special means of transport for sick and wounded were employed. No casualties were enforced, and no stretcher-bearer or first-aid work was seen. The sick were handed over to the civil authorities, who forwarded them to hospital. This system seemed to work fairly well for small numbers.

A certain number of men are said to be trained in first-aid duties yearly. Medical instruction is included in the Staff College course.

Communications.—No wireless telegraph apparatus was available. Field telegraphs and telephones appeared to work well, and were much used. No lamps or heliographs were employed and the flag work was of the most rudimentary and meagre description. Orderlies were consequently more in evidence than should have been necessary, and generally seemed to consider that, for the time being, they were neutral, so moved with small regard for concealment.

GERMANY.

Part II. B.—XIth Army Corps.

The XIth Army Corps manœuvres took place in the neighbourhood of Gotha and Langensalza between the 7th and 21st September, both days inclusive.

Strength of the troops employed.—During the first week the 76th Infantry Brigade consisting of the 71st and 95th Regiments was exercised, together with a squadron of hussars and a regiment of field artillery.

At the end of the manœuvre period, during the Army Corps manœuvres, the opposing forces were constituted as follows:—

Red force.—Major-general von Frankenberg. 1 infantry brigade with a proportion of cavalry and artillery.

Blue force.—Major-general von Manteuffel. 2 brigades of infantry, 1 squadron of cavalry and a brigade of field artillery.

REMARKS.

Infantry.—According to British ideas the formations assumed by the infantry were very vulnerable. They appeared to go straight ahead regardless of the value of cover or the probable effect of the opposing artillery fire. German soldiers never attempt to crawl or worm themselves into a firing position and they were seldom seen to extend to a greater interval than one pace. (*See report on Imperial manœuvres, page 66.*) The Germans do not dribble their men gradually into the firing line, but reinforce as was formerly done in the British service prior to the South African war, by sections or half companies moved up on the flanks as required [as laid down in the new German Infantry Drill Regulations of 1906.]

At the final stages of the attack the firing line was always very much crowded. (*See report on Imperial manœuvres, page 68.*)

It was stated that this was due to the space allotted to a brigade or regiment in the attack being fixed after deducting the probable percentage of losses. Casualties are not simulated at manœuvres.

A good plan is the practice of the commanders in the firing line calling out the range loudly as the reinforcements come up. [The new German Infantry Regulations of 1906 lay down that the men of the firing line shout the range to the reinforcements as they come up.]

Rushes are as a rule short and are led by an officer, accompanied by two non-commissioned officers. The men

were certainly in splendid training and did not seem to feel the weight of the 58·8 lbs. they carried on their backs. They moved with great celerity, though the weight must have handicapped them, but they do not appear to be so mobile as picked troops without packs. The pack appeared very conspicuous when lying down, and a firing line is easily picked out in the distance, having the appearance of a line of entrenchment.

On the 9th September the troops did not seem to act in unison with each other, an attack in one part of the field being delivered without the co-operation of the neighbouring troops.

Eventually the troops became so mixed that it was difficult to distinguish Blue from Red. Both sides were charging each other in all directions, and the desire to charge on every possible occasion seems too frequent and leads to impossible situations. But it is done so that the men will be accustomed to it and to impress on them that the end of every battle must be decided with the bayonet. Strongly posted troops frequently left their positions in order to charge 200 yards down hill to meet an attacking force, when all that was required to prevent the attack succeeding was to lie close and keep up a steady fire. (See report on Imperial manœuvres, page 68.)

The troops appeared to be very strictly controlled by their officers, the men showing little initiative of their own, but obeying orders and executing them with alacrity. They seemed to handle their arms well, and to adjust their sights and take careful aim. (See report on Imperial manœuvres, pages 68 and 69.)

The conclusions arrived at after witnessing these manœuvres were:—

- (i) The physique of the German soldier of 2 years' service is better and higher than that of the British soldier of the peace establishment. The troops engaged in these operations carrying packs of 58·8 lbs. weight seemed capable of enduring greater fatigue than British troops of relative service carrying nothing.
- (ii) According to British ideas, German tactics and formations are somewhat obsolete. The Germans appear to think that as heavy losses must be incurred in any case in modern warfare, it is better to keep the men together and under control, and to suffer the losses entailed, filling up the gaps with more and more men, rather than to lose control over the units by over-extension in the preliminary stages of the attack and trusting to the intelligence of the soldier to work out the general instructions for himself. It is possible they are right.

GERMANY.

Part III.—Cavalry.

The manœuvres or, more properly speaking, training of the Guard Cavalry Division took place on the Alten Grabow training ground west of Berlin between the 26th July and the 8th August.

Lieutenant-General von Bernhardt was director of the operations up to the 6th August, after which date they were directed by the Emperor in person.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

Commander.—Lieutenant-General von Bernhardt.

The Guard Cavalry Division, less the 4th Brigade attached to Blue.

The horse artillery brigade of the 1st Guard Field Artillery Regiment.

2nd Guard Machine Gun Section (called *Abteilung* in German; properly speaking a six-gun machine battery).

Blue Force.

Commander.—Major-General Graf von Brühl.

A composite cavalry division made up of a composite cavalry brigade, the 7th Cavalry Brigade and the 4th Guard Cavalry Brigade.

The horse artillery brigade of the 4th Guard Field Artillery Regiment.

The 1st Guard Machine Gun Section.

The number of units of both forces amounted to 60 squadrons, 4 batteries of horse artillery and 2 machine gun sections.

COUNTRY.

The Alten Grabow *Truppen-Übungs-Platz*, or training ground for troops, was bought by the Government in 1895 and is, roughly speaking, a sandy plain 5 miles square, covered in part with pine forest. It is good sound going, best after rain, otherwise dusty.

The Gloine, which intersects the training ground, is a small stream with marshy banks, and is passable only at the bridges.

Watch towers fitted with flagstaffs are erected at various points and are connected up by telephone. One of the purposes for which they are intended is to enable fires to be reported immediately by telephone to the camp.

Nearly every Army Corps at present has, or soon will have, manœuvring areas similar to Alten Grabow, which is specially well suited for cavalry manœuvres as it is almost entirely free from bad ground.

NATURE OF THE OPERATIONS.

Time Table.

26th July	- - -	-	Arrival of regiments.
27th July	- - -	-	Brigade exercises.
28th July	- - -	-	Rest day.
29th and 30th July	- - -	-	Brigade exercises.
31st July	- - -	-	Rest day.
1st, 2nd, and 3rd August	- - -	-	Divisional exercises.
4th August	- - -	-	Rest day.
7th and 8th August	- - -	-	Divisional exercises in presence of the Kaiser.

Manœuvres on the march.—The Guard Cavalry on the march to Alten Grabow were supposed to be the cavalry of a Blue force marching towards the Elbe from Berlin. The enemy (Red), who was invading Germany, was reported as having reached the Elbe with his cavalry between Magdeburg and Dessau. Four or five contact squadrons were sent forward to reconnoitre given areas towards, and up to, the river between those two places, the main body being covered by the protective cavalry.

One or two Red patrols reached Berlin on the first day of the operations having marched nearly 75 miles during the day and passed through the Blue cavalry.

These operations lasted three days and nights, and the advanced squadrons are reported to have had hardly any sleep, both forces being constantly on the move.

Active service conditions were adopted as far as possible, telephone wires being cut wherever met with.

The Telegraphy School at Berlin provided the necessary signallers and operators, and the different detachments of the reconnoitring cavalry were connected up by means of wireless telegraphy, telephones, signalling, and the use of "buzzers" on the permanent telegraph wires.

NARRATIVE.

7th August.

On the 7th August two schemes were set with divisions opposing each other, after which the Kaiser took command

of the troops and practised them as a cavalry corps in long advances and changes of direction.

It was most remarkable how well the troops drilled and how quickly the whole corps on one occasion changed front to the left, in spite of having to cross a marsh by a few causeways whilst doing so.

8th August.

On this day the Kaiser took command of the cavalry Corps and had a task set him by General Kleist, Inspector-General of Cavalry.

The situation was much the same as that of the French and Germans before the battle of Gravelotte, namely, that the cavalry, having ascertained the exact position of the enemy's right flank in the vicinity of Gloine, assisted the general attack by operating with a cavalry corps against the right rear and flank of the enemy's position.

Both in this scheme and in another which followed, the celerity with which great masses of cavalry were rallied was most striking. The horses had a hard day, covering 19 to 25 miles, a good deal of it at a gallop, and making long advances of from 3 to 3½ miles at various times. The horses stood the exertion well and did not appear unduly exhausted.

METHOD OF CONDUCTING THE MANŒUVRES.

At the commencement of the operations all the situations were very cut and dried, and each brigadier was told exactly what he was to do and how he was to dispose his troops. Nothing was left to his own initiative, and each fresh situation was intended to bring out some particular tactical principle.

During the divisional manœuvres the movements of the commanders were very clearly defined on the first two days, afterwards they were given a freer hand.

The Director of Operations also explained before each situation was given out exactly what he wished done, and lengthy conferences were held after each action, examples from past campaigns being cited in support of the principles, which are laid down in his book.

The troops were augmented by the free use of flags, and white flags were hoisted on the staffs of the watch towers to show when the patrols of the opposing sides could advance.

REMARKS.

Cavalry organization.—The Guard Cavalry Division is the only cavalry division permanently organized as such in peace time with its divisional staff. The remainder of the cavalry is organized in brigades; and the formation of divisional

staffs in peace time for the cavalry divisions to be formed on mobilization does not as yet exist.

Squadrons are usually 72 strong for manœuvre purposes, 12 in the front rank and 6 in the rear rank of each troop.

Drill and manœuvre.—The discipline and drill of German cavalry leaves nothing to be desired, and they remain thoroughly in hand under all circumstances.

Cavalry in the attack.—The formations adopted in the attack are various, for example, double column from the centre, and echelon. In no case however was a squadron or regiment noticed thrown forward in order to manœuvre against the enemy's flank, the reason given being that if a smaller body was thus sent forward and beaten, the enemy might by manœuvring, succeed in attacking from the threatened flank and thus hurl the defeated squadron or regiment back on the main line and throw it into confusion.

Every endeavour was, however, always made to manœuvre so as to strike the enemy in flank, but this was hardly ever successful, and the attack usually consisted in regiment after regiment galloping down one after the other, each fresh line being met by a corresponding force. Some squadron or regiment almost invariably extricated itself after charging the opposing cavalry and attacked the guns. This was done in open order by a frontal attack, usually without any attempt to take them in flank, the squadrons galloping down in line in open order with about 150 yards distance between each squadron. When cavalry charge cavalry the pace is a collected gallop, great importance being attached to close formation. When charging guns or machine guns, they gallop in extended order as fast as possible.

Regiments, brigades, and divisions made skilful use of the ground when manœuvring, and concealed themselves exceptionally well. The commanders of units ride well ahead of them. The scouts are, however, not well trained and expose themselves most needlessly.

After each attack, the side which is adjudged beaten retires at a trot, pursued at the same pace by the cheering victors.

The fact that different regiments often wear strikingly different uniforms no doubt helps the men to rally quickly after a charge. Probably cavalry dressed in khaki would be much assisted by always wearing distinctive caps. All the same it is very remarkable how quickly the men rally in two or more ranks as far as possible in their own troops or squadrons, afterwards finding their proper places when opportunity occurs.

Dismounted action.—The necessity of dismounted fire action is appreciated; it is not however always used judiciously. On 3rd August one divisional commander (Red),

sending a few mounted troops forward, selected a position, in an open plain between two woods, in which to dismount the majority of his force, with the inevitable result that he was rolled up from the flank and had his guns captured.

The dismounted schemes were not calculated to heighten the general conception of dismounted fire action, and the configuration of the ground did not lend itself to dismounted attacks. The cavalry accordingly did not gallop rapidly to points of vantage, dismount under cover, and pour in a volume of fire, thus making use of their superior mobility and keeping their horses close at hand. On the contrary, they dismounted a long way from the position to be attacked and advanced over the open plain laboriously and slowly on foot, the led horses being left far behind. The fire effect must have consequently been small and there were no supports to reinforce the firing line, which would have lost heavily during the long and exposed advance.

Long-range fire was never used to cover a dismounted advance.

Cases of good employment of dismounted fire action did, however, occur.

On the 2nd August a brigade commander hid a dismounted squadron in a small copse and then manœuvred so as to draw the enemy past the copse, exposing him to a destructive flank fire, and then charged.

On the same day a strong position was attacked by the dismounted men of the division. In this attack some of the regiments worked much better than others. One regiment took cover and skirmished very well, while others did not extend sufficiently. These advanced in exact lines without taking advantage of the ground, and the men crawled along in their big boots and white uniforms on their hands and knees looking like large sheep, instead of rapidly doubling from cover to cover. Their movements showed generally that their officers had not the most rudimentary knowledge of how a dismounted attack should be carried out. No long-range containing fire was employed and the troops did not overlap the flank and rear of the position sufficiently, although they might have done so unobserved.

On 3rd August the advanced squadron of the cuirassiers delayed the enemy by dismounted fire, thus giving the main body time to come up and manœuvre to a flank preparatory to charging.

Trumpet sounds and signals.—Trumpet sounds are only made preparatory to and after the charge. Signals are used when they apply equally to all the troops in sight, otherwise orders are sent by orderlies. Flag signalling is not used at all and semaphore is unknown.

Formations.—The usual rendezvous formation was what we call "Line of Masses." A new formation frequently adopted on the move was "Double column of Squadron columns." The interval between the two columns varied according to the ground. With four squadron regiments this appears an excellent formation.

"Line of Squadron Columns" was also used, but the "Double Column" as above was considered handier.

When advancing as supports of reserves and exposed to artillery fire, the formation of line of squadrons in column of sections at deploying distance was occasionally employed. This formation the Germans maintain is less vulnerable than "Line of Squadron Columns," the frontage of the squadrons being less, and the depth only five yards greater.

When approaching the enemy the regimental commanders often rode with the brigadier, handing over the leading of their regiments to the senior officer present. And when the commanders were with their regiments before the attack, the squadron leaders frequently rode with them, the next senior meanwhile leading the squadrons.

As the ground was well known only sufficient ground scouts were sent out to show that the necessity for them is recognized. Those of a brigade always, and those of a regiment if the ground appears difficult, are in charge of an officer.

Great importance is attached to men riding closed up on all occasions. Squadrons, regiments, and brigades always ride at their regulation intervals and distances, no matter whether they are in column of route or charging.

It is only by paying unremitting attention during the winter months to the training of the horses, and the discipline and closed movements of a squadron, that such large bodies of horsemen can be manoeuvred without confusion or disorder during the summer.

Armament.—The cavalry are at present armed with a lance, sword and the 1898 Mauser carbine sighted up to 1,200 metres (1,320 yards), but the last is shortly to be changed to a short rifle, it is understood. Trumpeters and non-commissioned officers are armed with a revolver, 1883 pattern, and sword, but it is in contemplation to substitute the Browning pistol for the revolver.

Equipment.—The carbine is carried in a bucket on the off side in the rear of the saddle. An equipment was on trial for carrying the carbine or rifle on the man. About 20 such equipments were in use in one of the Guard Ulan regiments, but it was pronounced unsatisfactory and will not be adopted.

In some squadrons a certain number of saddles were being experimented with, the trees of which are made of *papier mâché*, with iron arches, and with a leather detachable seat in one piece. These saddles are 2 lbs. lighter than the ordinary saddle. They have been on trial for two or three years and seem to have worn very well, and are likely to be adopted as they have been most favourably reported on. Adjustable trees with hinges have also been tried but discarded, owing to the hinges constantly breaking.

The wallets carried are very large, heavy and capacious. They have pockets attached on the outside for horse shoes and ammunition, and a canvas roll underneath for a change of underclothing.

A mess tin of somewhat heavy metal, in a heavy leather case, is carried on the near side against the sword scabbard. It has a tin cover which can be used as a cup or frying pan; a handle for the cover is carried separately in the mess tin. The total weight, in the leather case, is probably about 10 lbs. These mess tins, it was stated, were found very useful in South-West Africa, and were preferred to squadron kettles for cooking purposes.

Forage Ration.—The daily ration per horse at Alten Graßow was 11 lbs. or 12 lbs. of oats, 5 lbs. hay, and 3 lbs. straw. [The field forage ration (*Kriegs-Ration*) is 13 lbs. $3\frac{3}{4}$ oz. oats, 5 lbs. $8\frac{1}{2}$ oz. hay and 3 lbs. $4\frac{1}{6}$ oz. straw.] The extra pound of oats was for the heavy cavalry. The oats seemed to be of very good quality.

Shoeing.—The shoeing, and material used, appeared good. Three methods are used for roughing horses, viz. :—

- i. By stuffing the frog with twisted straw rope (generally used when embarking horses to prevent slipping on gangway and decks).
- ii. By pouring a compound into the frog.
- iii. By roughing with nails.

The last method is the most satisfactory.

Horse Artillery.—Every cavalry division when mobilized has a brigade of horse artillery attached to it. The two brigades present at these manœuvres were armed with the new '96 n/A 1905 equipment.

Indirect fire never seemed to be employed, and the methods usually adopted by horse artillery in coming into action were frequently ignored. The guns were driven boldly up on to the skyline when there was ample time for manhandling them into position. Only once was it noticed that they were manhandled into position, and this was on 8th August, when the Emperor was commanding the cavalry corps.

On one occasion in order to cover the flank march of a brigade of cavalry, the horse artillery came into action at 3,300 yards range exposed to the fire of a hostile battery.

No attempt of any kind was ever made at concealment of the guns, and the horses were usually kept very close up in action.

Frequently when coming rapidly into action, the only thought was to get the guns off as quickly as possible, often without any attempt being made to lay them, nor was this neglect checked by the officers. The horse artillery marches near the head of the column, and under all circumstances comes into action very quickly by galloping on ahead of the cavalry, who pivot on it and manœuvre so as to expose the enemy as far as possible to its fire.

The guns always have an escort, which sometimes remains too close to them, sitting on their horses and never dismounted.

Machine Gun Tactics.—Machine guns in the German army are treated as a separate arm like artillery, and are formed into sections (*Abteilungen*). (Equivalent to a battery, being composed of 6 guns and 3 ammunition wagons. For full description of organization and equipment, see Report on Foreign Manœuvres, 1905, page 98). The *personnel* are trained during the whole of their service with machine guns. The result is consequently that they are all experts, both practically and theoretically. The arm is therefore an exceptionally strong factor both in attack and defence.

The officers in command of the two sections at Alten Grabow handled their commands well, took every advantage of cover, and made good use of their guns. In one or two cases they appeared to ignore the fact that detection by the horse artillery meant being put out of action, and remained in action exposed to artillery fire at 3,000–3,500 yards. On the 2nd August a squadron of the 1st Dragoon Regiment succeeded, thanks to the cover of a wood, in approaching a machine gun battery unobserved, and in capturing it without a shot being fired at them.

It is difficult for cavalry to distinguish machine guns from horse artillery at a distance, the only striking difference being the team of four horses instead of six and the absence of the mounted detachments. Accordingly reconnoitring patrols generally only report "guns."

The sledge mounting is an excellent arrangement; it enables the gun to be rapidly carried or dragged into position, and it remains steady in any position when firing, which is not the case with a tripod mounting.

The German idea of working their machine guns in batteries has many advantages over our single-gun system.

If a gun goes wrong the volume of fire is not dangerously decreased.

The guns are under the command of a specialist who thoroughly understands how they can be most advantageously used, and above all, the general commanding knowing he has a valuable weapon at his disposal, gives the matter thought how best to use it. They are extremely mobile, the four horses being able to drag them anywhere; possibly on service six would be required for heavy going. The detachments are mounted on the carriages, and as they have no horses to look after, the guns are brought in and out of action with great celerity. Each section always has an escort.

Machine gun range-finder.—Each section had a prismatic range-finder with a special trained non-commissioned officer to work it. This instrument is the same as that seen at the Imperial manoeuvres (see page 70), and consists of a cylinder about 3 feet long, and 3 inches in diameter. On one side of the cylinder near each end is an aperture with lenses. On the other side in the centre of the cylinder is an eye-piece which can be adjusted to focus. On the right of the eye-piece and parallel to the instrument is a drum spirally graduated in metres, and also a pointer. When travelling it is packed in a leather case and carried on one of the gun carriages.

Cavalry transport.—The ordinary transport with the cavalry consists of a very heavy wagon drawn by four horses. It is merely an adaptation of the heavy agricultural cart of the country, and is certainly far too heavy for the ordinary troop horse.

The lock is so small that it requires a very wide road in which to turn round, but the wagon is very strong and would stand a great deal of rough work.

Communication in the Field.—The authorities are being pressed to introduce a system of regimental signallers on much the same lines as in our army. Some attempts have been made to carry out this project, but it has been found impossible to train the men properly and keep them up to the required standard of efficiency, owing to the amount of other work necessary to their training as soldiers. At present signalling is taught at the School of Telegraphy at Berlin. One officer and one non-commissioned officer per regiment attend annually.

On the march from Berlin to Alten Grabow, the troops manoeuvred under service conditions, and the telegraphy class practised signalling and was made much use of.

Cavalry telephone equipment.—Every cavalry regiment has a field telephone with 6 kilometres ($3\frac{3}{4}$ miles) of wire. Speaking instruments and "buzzers" are used. The equipment is carried by three men, each carrying two reels of wire

in his wallets. The reel is made of *papier mâché* and holds a kilometre ($\frac{5}{8}$ th mile) of wire. The existing telegraph wires are also very largely used.

Motors.—Motor bicycles have been tried and found extremely useful, especially for communicating with detached squadrons of cavalry. This system is said to be strongly recommended by General von Bernhardt.

In time of war men in possession of motor bicycles would bring them with them on rejoining the colours.

Cavalry horses.—The horses were on the whole a very good class, the majority of them being bred in Prussia and Hanover.

In order to encourage the farmers to breed, the government sells them two or three year old mares for two to three hundred marks (10*l.* to 15*l.*), provided they undertake to breed and to give government first refusal of the young stock. Good stallions are also posted about the country.

All remounts are bought as three-year olds and kept for one year before being issued to the troops. The average prices are about as follows:—

a. Garde du Corps and Cuirassiers	-	1,200 marks	(60 <i>l.</i>)
b. Ulan and Dragoons	-	1,000	„ (50 <i>l.</i>)
c. Hussars	-	800	„ (40 <i>l.</i>)

(a) are heavy horses, much the same stamp as those of our Household Cavalry.

(b) resemble our lancer horses.

(c) A small wiry horse bred in East Prussia, height about 15 hands, showing Arab blood plainly. Would be most valuable on active service, and is said to be capable of great and sustained exertion.

No feeds were taken on parade and troops never off-saddled, although they frequently dismounted and slackened girths and shifted saddles when opportunity occurred.

In the "Handbook of the German Army, 1906," it is stated there are 56 pack horses to a regiment; but this is not the case.

The horses generally are capable of great exertion and long days. The hours were usually from 6 or 7 a.m. till 12 to 1.30 p.m., with only a short time for rest while the conferences were going on. Undoubtedly the horses showed signs of what they had been through, but even a single rest day enabled them to pick up a good deal.

Many of the gallops of 2 miles to 2½ miles long were covered at a collected pace without undue exhaustion.

The *Schonungs-Pferde*, i.e. horses that require sparing, parade with their squadrons and are then sent to some central spot where they wait till the manœuvring is over, rejoining

their squadrons for the march past, which takes place daily at the end of the morning's work.

It is very noticeable how well the horses are trained; they never run away in a charge or shake their heads about in the ranks, in spite of the fact that lances are carried. This is attributable to the refresher courses every horse has to go through yearly from October till March, and to which so much importance is attached that the Kaiser himself sees each squadron of the guard cavalry at the end of the winter training to judge how the training of the horses has progressed.

They appeared, however, not to have had much practice in jumping from the difficulty some of them had in crossing even small ditches.

(In addition to the foregoing manœuvres, bridging operations took place on the Oder, and pioneer manœuvres on the Rhine. Detailed accounts of these operations will be published separately and in a confidential form.)

ITALY.

The Grand manœuvres took place in the country to the west of Lake Maggiore, between the Simplon Pass, Novara and Ivrea, the area in which the opposing forces came into collision being about the southern end of the Lake of Orta, and between the southern end of Lake Maggiore and Biella.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

Commander :—LIEUT.-GENERAL MAJNONI D'INTIGNANO.

1ST ARMY CORPS : LIEUT.-GENERAL BARBIERI.

Formation.	Personnel.	Guns.	Horses.
Infantry (27 battalions) - - -	10,800	—	220
Cavalry (6 squadrons) - - -	700	—	670
Artillery (16 batteries) - - -	1,495	64	720
Engineers, 2 companies of sappers -	312	—	40
" 1 company of telegraphists -	150	—	210
3 ammunition columns - - -	310	—	81
3 divisional field hospitals - - -	310	—	81
1 corps field hospital - - -	310	—	81
1 red cross field hospital - - -	310	—	81
1 reserve field hospital - - -	310	—	81
Supply services - - -	530	—	280
1st Army Corps : Total - - -	14,607	64	2,302

IIIrd ARMY CORPS : LIEUT.-GENERAL COSTANTINI.

Formation.	Personnel.	Guns.	Horses.
Infantry (26 battalions) - - -	10,400	—	210
Cavalry (6 squadrons) - - -	710	—	670
Artillery (16 batteries) - - -	1,495	64	800
Engineers, 2 companies of sappers -	312	—	40
" 1 company of telegraphists -	150	—	210
3 ammunition columns - - -	310	—	81
3 divisional field hospitals - - -	310	—	81
1 corps field hospital - - -	310	—	81
1 red cross field hospital - - -	310	—	81
1 reserve field hospital - - -	310	—	81
Supply services - - -	550	—	280
IIIrd Army Corps : Total - - -	14,237	64	2,372
Total, Red Army - - -	28,844	128	4,674

Blue Force.

Commander:—LIEUT.-GENERAL ROGIER.

IInd ARMY CORPS: LIEUT.-GENERAL GOIRAN.

Formation.	Personnel.	Guns.	Horses.
Infantry (26 battalions)	10,400	—	210
Artillery (16 batteries)	1,490	64	720
Cavalry (6 squadrons)	715	—	670
Engineers, 2 companies of sappers	314	—	40
" 1 company of telegraphists		—	
3 ammunition columns	150	—	210
3 divisional field hospitals	300	—	81
1 corps field hospital	320	—	81
1 red cross field hospital			
1 reserve field hospital			
Supply services	550	—	280
IInd Army Corps: Total	14,239	64	2,292

7TH DIVISION: MAJOR-GENERAL SAPELLI.

Formation.	Personnel.	Guns.	Horses.
Infantry (11 battalions)	4,400	—	98
Artillery (5 batteries)	465	20	250
Engineers (1 company of sappers)	125	—	12
Ammunition column	49	—	70
Divisional field hospital	102	—	29
Supply section	44	—	70
7th Division, Total	5,185	20	468

CAVALRY DIVISION: MAJOR-GENERAL MATTIOLI.

2 brigades (2 regiments, 6 squadrons each=24 squadrons).	2,800	—	2,680
Artillery (2 batteries horse artillery)	190	8	100
Cyclists (1 company)	120	—	—
Divisional field hospital	105	—	28
Reserve hospital	105	—	30
Supply services	46	—	10
Cavalry Division, Total	3,366	8	2,848
Total, Blue Army	22,790	92	5,608
Red and Blue Armies together, Total	51,634	220	10,282

In addition, the director of operations had the following at his disposal:—1 wireless telegraphy park with 6 stations, 2 companies railway engineers, 1 company telegraph engineers, and 1 section of automobilists.

All these were regarded as neutral, as was also a four-gun battery of 7.5 cm. (3-inch) Krupp Q.F., new model, steel guns, which was to be reported on by the committee of inquiry appointed by Parliament.

COUNTRY.

The two great lines of approach from the north down the Val d'Aosta and from the Simplon converge towards the plains of Novara. The descent from the highest Alps to the plains is sudden, and lateral communication between columns marching on the two main roads towards Novara is impossible until, in the foothills, the road is reached running from Lake Maggiore, *viâ* the south end of the Lake of Orta, Borgosesia, and Biella, to Ivrea. The mountains are very steep, and are practically impassable for all troops but infantry, and in many places even this arm cannot operate off the roads. The plains, too, are difficult to traverse, on account of vineyards and other cultivation, and the numerous natural and artificial water-channels. In the valleys and plains, villages and towns are numerous, and the population is considerable.

NATURE OF THE OPERATIONS.

The general idea was that the Italian army (Blue) was engaged with the bulk of its forces against an enemy beyond the western frontiers of Italy.

A Red column, coming from the Simplon and pushing aside small Blue detachments, had occupied Domodossola, and its cavalry had reached Ornavasso. Another Red column, having overcome the resistance of the fortress of Bard, had reached Ivrea, occupied Zubiena, and pushed its cavalry on to Cerrione.

Blue was collecting considerable forces at Novara.

NARRATIVE.

On the 27th August the IIIrd Red Army Corps, moving on both sides of the Lake of Orta, continued its march south with the object of effecting a junction with the Ist Army Corps, which was marching north-east towards the southern end of the lake. The Blue cavalry division was despatched westward with orders to check the Ist Red Corps, whilst the Blue main force pushed north.

On the 30th August, after desultory fighting, Blue succeeded in interposing between the Ist and IIIrd Red Corps, but was subsequently compelled to withdraw, owing mainly to the ineffectual work of its cavalry division.

The two Red corps gained touch on the 1st September, and, pushing Blue southwards, concentrated a few miles

south of the Lake of Orta on the 2nd September. On this day the Blue cavalry division was withdrawn from Blue's left and operated against the left flank of Red's IIIrd Corps. It was, however, driven back, and the whole Blue force was continuing its retirement southwards when the manoeuvres were brought to a close.

METHOD OF CONDUCTING THE MANŒUVRES.

The day's work usually commenced at about 6 a.m. and lasted till midday. The 31st August was a rest-day and at midday on the 2nd September the manoeuvres were stopped altogether, instead of continuing till the 6th September as had been originally proposed.

It was intended that the operations should be carried out as far as possible under service conditions, and that the commanders should have absolute freedom of action. In reality, however, this was far from being the case, and commanders were frequently hampered by instructions issued by the Directing Staff. Outpost troops were forbidden to move before 4 a.m. and other troops before 5 p.m., whilst the main body of the Blue army which should have marched on the evening of the 27th August, was not allowed to move before the morning of the 28th.

The average marches of the main bodies of the armies were about 11 or 12 miles a day. Advanced troops occasionally did more. As the actual manoeuvring was practically limited to about 7 hours of the day it cannot be considered that heavy calls were made on the men. This was mainly due to the excessive fear of public opinion, more especially of the Press, which is continually giving exaggerated accounts of the hardships the troops undergo. The manoeuvres were thus robbed of much of their value and interest.

Lieut.-General Saletta, Chief of the General Staff, acted as Director, and he was assisted by 32 officers, two of whom were naval officers.

Lieut.-General Pedotti was umpire in chief, and with him were 20 general officers as umpires, each with an A.D.C. and two assistant umpires, who were either field officers or captains. The whole umpire staff thus comprised 83 officers, exclusive of the "information" staff, which consisted of 15 officers under the direction of Colonel Ruelle. About 50 motor cars were provided for the use of the directing staff, umpires, and "information" officers, a motor park being formed at Borgomanero and another at Maggiora. A large proportion of the cars were the private property of civilians who lent their services for the manoeuvres.

A convenience to all concerned was the issue every morning early, by the directing staff, of maps on a scale of

1/100,000, showing the position of all troops on the preceding evening, together with a brief summary of the day's operations and a forecast of probable movements.

REMARKS.

The three Arms Combined.—The small bodies of cavalry attached to the two Red columns and to the Blue main body worked well with the Bersaglieri and cyclists as advanced troops. Owing to the nature of the ground, there was, however, little scope at any period, for the combined action of all three arms, for artillery positions were very limited, the fields of fire restricted and the steep hills rendered it extremely difficult for the guns to be brought into action.

Infantry.—There is little to add to previous reports on the infantry. The men were quiet and obedient but seem to have little dash or keenness. On the march there is much straggling, fire discipline is very indifferent and the care of the rifle much neglected. The tactical handling left a great deal to be desired on the part of the company officers, whose authority seemed insufficient. In physique and quality the Bersaglieri were much superior to the other infantry, but their unintelligent tactical handling and inefficiency in the use of the rifle must detract largely from the value they might otherwise have. All the troops seemed rather apathetic and depressed, and the officers appear too old and lacking in energy and in the capacity to inspire their men with life and vigour.

It is clear that all ranks suffer very much from the condition of depleted *cadres* in which the Italian army always finds itself. As half the strength of the companies consisted of reserve men (*Richiamati*), it follows that normally the companies would only be about 40 strong, a state of affairs which is not conducive to efficient training.

Cavalry.—The manœuvres gave little scope for the employment of cavalry in its true rôle. The small force with each of the main columns was employed rather to assist the Bersaglieri and cyclist infantry to hold advanced points, destroy bridges, &c., than for purposes of genuine reconnaissance. The cavalry regiment detached from the Blue cavalry division did good work in hindering the advance eastward of the Ist Army Corps, but, with this exception, the action of the cavalry division had practically no influence whatever on the course of events. There is little to record concerning the cavalry generally beyond what has been reported in former years.

Artillery.—The artillery had two types of guns in the field. The divisional artillery had the 75A steel guns, and

the corps artillery the old 87B bronze guns. The country was unfavourable for this arm, but on several occasions individual batteries were well employed with the advanced infantry. The employment of the artillery in larger masses disclosed the primitive methods reported on former occasions. Indirect fire was never resorted to, and lines of batteries were brought into action on the crest line of hills within short range of infantry in great strength. Telescopes, range-finders, and telephones were all conspicuous by their absence. Gun-teams were kept close in rear of the batteries in action, in positions where they must have suffered heavy loss in actual warfare.

Engineers.—There was little work for the engineers with the columns. Simulated demolitions and repairs were practised on a few occasions at the commencement of the manoeuvres, but there was absolutely no entrenching on either side, either by the infantry, artillery, or engineers, neither was any attempt made to indicate the defence of localities.

Very good work was, however, done by the engineers in laying the telegraph and telephone lines for the use of the directing and umpire staff, and in handling the 6 wireless telegraph stations. The engineers in charge of the automobile park were also most useful. The army has many very clever and keen engineer specialists, and therefore technical work of a scientific character was generally well carried out; but the field engineers, that is the sapper companies, were but little utilized.

Medical Services.—With each army corps was a complete Red Cross field hospital of 50 beds, working under the direction of the army medical staff under exactly the same conditions as the service field hospitals. With the 1st Army Corps there was also a reserve field hospital of 100 beds, and for the Red army a base field hospital of the reserve with 200 beds. The Blue army base field hospital of the reserve had only 100 beds. All these units are said to have done well and received a number of cases of minor accidents and minor illnesses. The sanitary arrangements on the whole were very good.

Field Telegraphy and Telephones.—No new apparatus was tried this year, but a more extensive use was made of telegraphs and telephones than has hitherto been attempted. The public telegraph lines within the area of the manoeuvres had each a temporary military air-line attached. In addition telephones were used to connect divisional with army corps and army headquarters, and the directing staff headquarters with those of both of the opposing armies.

Wireless Telegraphy.—The usual Marconi apparatus was used, and six stations were employed, each with two vehicles.

The new motor one-vehicle station was not used. The wireless telegraphic installations worked excellently except on the night of August 31st, when there was very heavy rain and a thunderstorm.

Signalling.—Visual signalling was practically unknown, although admirable stations were nearly always available.

Machine guns.—A two-gun section of Maxims was issued for trial to the infantry, and two sections to the cavalry. The infantry Maxims were mounted on light wheeled carriages and the cavalry guns on pack-saddles. Both descriptions of mounting are said to have been satisfactory, and infinitely superior to the clumsy mounting used last year at the cavalry manoeuvres.

Transport.—There was no change in the transport arrangements, but the old model wagons are slowly being replaced by the new type with springs. About ten 24-H.P. motor wagons were on trial for supply purposes. They were found very useful, but a definite type has not yet been adopted. Small motors, such as the Ford two-seated 15-18-H.P., costing 160*l.*, were highly spoken of; these were used for carrying staff officers, distributing orders, and collecting reports.

System of Supply.—Each division had its own supply section. The 1st Army Corps had further a supply section, 2 supply columns (with hired vehicles), a bakery, and a reserve boots and supply section. The 3rd Army Corps had an advanced magazine for daily supplies, and an advanced field bakery and cattle park; there was also a supply section, and supply column (with hired vehicles), for the corps troops. The supply services for Blue were organized in a similar manner. The supply sections provided meat and hay, and the advanced magazines bread or rice, bacon, salt, coffee, sugar, oats, and compressed forage. Wine was purchased by the supply officers locally, and also straw for sleeping on. All the supplies were punctually received by the troops except the straw, which could not always be obtained, and dried foliage was sometimes substituted.

Billets, bivouacs, and watering arrangements.—Special arrangements were made only in the case of the staffs of armies and of the directing and umpire staffs. The troops bivouacked in their small tents, but no special arrangements were made either for bivouacking or watering. Streams were numerous and excellent water was everywhere easily obtainable.

Cyclists.—The Bersaglieri cyclists on their small folding machines did excellent work. Cyclist companies are becoming more and more a feature of the Italian army.

Miscellaneous.—The general staff of the Italian army consists entirely of officers of a very high degree of education and technical training, but they are greatly lacking in practical knowledge of the handling of troops. This was exemplified by the feeble and hesitating manœuvring of the two opposing armies, and any interference on the part of the directing staff cannot wholly account for the numerous opportunities which were missed by both sides of carrying out a plan of action which promised to yield decisive results:

In spite however of the shortcomings of the staff, the Italian army is undoubtedly making rapid strides towards efficiency, and the progress would be more marked but for the extreme weakness of all but cavalry units. It is this weakness which hampers training and constitutes one of the chief obstacles to further advancement.

JAPAN.

Grand Manœuvres.

The Grand manœuvres lasted from the 15th to the 19th November, both days inclusive. They were led up to by brigade and divisional manœuvres in such a manner that, when the divisional manœuvres came to an end, the divisions were found to be in the area assigned to them in the General Idea of the Grand manœuvres.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

The following troops took part: Guard, 1st, 3rd, and 15th Divisions, the 1st and 2nd Cavalry Brigades, the 1st and 2nd Field Artillery Brigades, 1st and 2nd Battalions of Heavy Artillery, 2 Light Bridging Corps, a Pontoon Corps, 2 Balloon Sections, and some Telephone Sections.

During the Grand manœuvres these troops were formed into an Eastern and a Western army of almost equal strength, each consisting of about 60 staff officers, 17,400 infantry, 1,800 cavalry, 1,840 artillery, and 2,000 engineers and transport troops, together with 12 heavy, 120 field, and 64 machine guns, and 90 pontoons.

COUNTRY.

The Grand manœuvres took place within an area, about 50 miles long and 25 miles broad, through which the Rivers Kinu, Omoi, and Nagano and their tributaries flow north and south, with a range of hills east and west of the Kinu and Nagano respectively. A double line of railway runs due north and south and another due east and west. The country is very much enclosed; there are no fences, but innumerable deep rice swamps, with clumps of bamboo, plantations of fir trees, small woods and innumerable mulberry bushes. The rice fields are obstacles almost as formidable as the rivers, being impassable except at certain places. There is an almost complete absence of stereotyped artillery positions, and the intricate nature of the country renders the transmission of intelligence, when received, very difficult.

NATURE OF THE OPERATIONS.

General Idea.—An Eastern Army is retreating, after being separated into two parts, one moving east and the other

(imaginary) south-east. Another portion of the Eastern Army, 50 miles due east, is moving southwards.

A Western Army is in pursuit.

The Eastern Army is ordered to assume the offensive, and to threaten the left flank and rear of the enemy.

The Western Army is ordered to drive back the enemy, and to check the advance of the force moving southwards.

METHOD OF CONDUCTING THE MANŒUVRES.

The autumn manœuvres were divided into three periods, brigade, divisional, and Grand manœuvres. The number of days of actual work was 11, brigade manœuvres lasting for three days and divisional and Grand manœuvres for four days each. This is exclusive of the time spent in marching to and from the respective manœuvre areas nor does it include two days' rest.

In brigade and divisional manœuvres the divisional units, *i.e.*, one cavalry regiment, one field artillery regiment, and one engineer battalion with bridging section, were split up between the opposing regiments and brigades so as to make each side a complete tactical unit.

During the last two days of the divisional manœuvres the division acted as a whole against a skeleton enemy formed by taking a battalion from each regiment of infantry, a squadron from each regiment of cavalry, three batteries from each regiment of field artillery, and one company from each battalion of engineers; this force was made up with flags to represent a complete division. Field hospitals, ammunition columns, and supply columns were imaginary.

The Grand manœuvres were, nominally, under the direction of His Majesty the Emperor, but in reality were under General Oku, the Chief of the General Staff. The umpires and attached officers, to the number of 109, were drawn from various educational establishments, and from divisions not taking part in the manœuvres. Many reserve and naval officers followed the operations, most of them being dismounted.

Perhaps the most remarkable feature of the manœuvres was the extraordinary devotion shown by the civil population for the soldiers. Accommodation was provided gladly and willingly, and it was noticed that the villagers constantly gave little presents of food and drink to almost everyone who wore uniform. For months previously preparations had been made in the country districts in anticipation of the manœuvres, roads over rice fields had been repaired, bridges built, and sketch maps of every village prepared. Every little house was flying the national flag, and almost every village provided tubs filled with water for the horses. Crowds of interested

spectators watched the operations with intelligent interest, many of whom, provided with a knapsack and blanket, followed the troops; the children, too, of all the schools in the neighbourhood were marched out to see the troops.

At the same time the villagers, who did not understand the rulings of umpires, had no pity for troops who were retreating, and in one case the houses were closed against a regiment which was marching to the rear.

The soldiers were very keen, and entered most thoroughly into the spirit of the operations; perhaps, however, their intelligence has been over-rated. The whole spirit of the army is for *forward and attack*, and it is a remarkable fact that there is a marked difference in the demeanour of both officers and men when retiring. In retreat the men were as near a state of dejection as it is possible for Japanese soldiers to be.

The value of the Grand manœuvres was greatly diminished by the fact that the course of events was planned beforehand, with the chief object of producing a grand spectacular effect on the last day near a particular position from which His Majesty could obtain a good view.

Review.—On the conclusion of the manœuvres a review was held, the troops marching past in the following order: infantry, engineers, infantry machine guns, cavalry, cavalry machine guns, field artillery, heavy artillery. The sight was most impressive.

At a big review in England or in India there is always a certain amount of variety as each battalion comes swinging by, each in its own uniform and to its own regimental tune. Here in Japan variety is entirely absent. The uniform throughout the army is the same. The different branches of the service are distinguished merely by different coloured collar badges, while the regiments differ from each other only in so far that the men have different regimental numbers on their collar badges.

Then, again, the 48 battalions of infantry and the engineers marched past to the same tune, while after them came the mounted branches to another air.

This monotony, this uniformity, added to, rather than detracted from, the impressiveness of the parade. It gave one the impression of immense power.

Staff.—The staffs of both the opposing armies were composed in a peculiar manner. In one of them all the officers, from the commander down to the youngest adjutant, belonged to the General Staff; in the other only officers of the inspecting staff and of the military training department were employed, so that officers of different departments had the opportunity of submitting their theoretical knowledge to a practical test.

REMARKS.

A noteworthy feature in all the general and special ideas set throughout the manoeuvres was their simplicity. Officers were not called upon to solve intricate political and strategical problems, but were set simple straightforward tasks.

Japanese officers are most carefully trained in the art of giving and receiving orders, and they have a wonderful power of receiving and delivering long and complicated orders without a mistake. From the moment of entering the service, all officers and men are constantly being practised in this memory training. The system of issuing orders is to give them out verbally and for the recipients to write them down. It was perfectly amazing to hear a divisional chief of the staff giving out verbally without reference to any notes, to representatives of units of the division, long and complicated orders.

During manoeuvres, although bearer companies, field hospitals, ammunition columns, and supply columns were not present, these units were referred to in all orders.

All staff arrangements appeared to be perfect and everything seemed to work smoothly, one reason being that, in the Japanese Army, there are no under-manned and over-worked staffs, and every staff officer has his work clearly defined and is never called upon to do the work of anyone else.

It was particularly noticed how slow to act were the responsible commanders. Invariably before an attack, after the position had been reconnoitred, and when within striking distance, a pause of some hours would ensue. During this time the commander of the force, surrounded by his staff and the officers commanding units, would consult his map and discuss the best method of delivering the attack. The attack was only delivered after very deliberate and very lengthy preparation, but, when once delivered, it was carried through with unquenchable determination.

Billeting.—The ease and celerity with which large numbers of men were billeted on the inhabitants and supplied with food and forage appeared at first sight to be miraculous. Previous to the manoeuvres, officers were sent to the districts in which they were to take place to report upon the accommodation and supplies available. The general and special ideas were then drawn up, and the dates fixed upon which troops would billet in each village. Communication was opened with the village mayors, who were informed of the number of men and horses and of the dates of arrival of the troops at their villages. The mayor then drew up a plan showing the billeting accommodation of each house. Great secrecy was maintained, and it was not known by the units where they would billet until orders arrived in the afternoon. On receipt of the billeting

orders the regimental adjutant and the sergeant-major rode on, and after obtaining a list of the houses from the mayor, told them off to battalions. The adjutant and the sergeant-major of the latter unit arrived a little before the unit and told off the houses to the companies. On the arrival of the companies, the company sergeant-major, a first class soldier and a bugler went round the houses and detailed the number of men to each. The sergeant-major had strips of linen already prepared, on which he wrote the number of men and the section; this he nailed up outside the house. The owner of the house received twopence per head, and for this he had to provide bed-clothing, light, charcoal, and a hot bath. The senior soldier in each house was the billeting commander, and it was his duty to fill up a form, supplied for the purpose, stating the number of men for whom accommodation was provided. This he signed and handed to the owner, who took it to the office of the mayor. The latter then made out a complete bill, which was paid by the Intendant of the unit before it marched out. Thus much correspondence was saved, very little transport was required, and the country people were pleased at being able to sell so much of their produce.

Close billeting was practised three times. In this system units were allotted areas, and every house and shed in that area was utilised, the idea being to keep the units together. The officers eat the same food as the men, but very often the landlord produced some little delicacy for them.

Umpires sometimes stayed at inns, government paying one shilling for food and lodging for one day.

Umpires.—One hundred and nine officers, including attached or recording officers, were employed as umpires, 30 with the Eastern Army and 32 with the Western Army, the remainder being central umpires. It was noticed that umpires spent a great deal of their time in scribbling in their note books and acting as critics, instead of giving directions to the troops and so preventing, as far as possible, unreal situations arising.

Diaries.—On the conclusion of the manoeuvres every adjutant furnished a report on the doings of his unit, this being compiled from the diaries sent in by commanding officers. Every night on arrival in billet or bivouac the battalion adjutant would sit down and, with his young officer assistant, go through all the reports received during the day and compile a brief history of the doings of the battalion.

Maps.—All officers and many non-commissioned officers and men are very good at reading maps, and great importance is attached to their ability to do so. The greatest use is made of maps, and it was no uncommon sight to see all

officers marching along with their maps open, checking them with the surrounding country. For the Grand manoeuvres a map in four sheets was issued on a scale of $\frac{1}{50,000}$. In the cavalry 100 sets of this special manoeuvre map were issued to each regiment, so that every officer and non-commissioned officer was provided with a set. In the infantry maps were issued only to officers, who lent them to non-commissioned officers when required; some of the latter, however, provided themselves with maps at their own expense, such maps cost 1s. 1½d. In the artillery maps were issued to one-third of the men, but as the officers bought their own it usually happened that 50 per cent. of the men possessed them. It was particularly noticed that non-commissioned officers and men of the artillery were constantly practising map reading when on the march, and scouts and orderlies were able to describe accurately by the map the position of the enemy. The maps actually in use were generally carried in the pocket or in the side of the boot.

Ammunition.—The allowance of blank ammunition for the Grand manoeuvres was as follows:—Infantry, 80 rounds per rifle; cavalry, 30 rounds per carbine; engineers, 10 rounds per rifle; transport corps, 10 rounds per rifle; machine gun, 3,500 rounds per gun; field artillery, 100 rounds per gun; heavy artillery, 50 rounds per gun.

The cost of S.A.A. blank is approximately one-third of that of ball ammunition.

Communication.—On the whole the arrangements for communication were disappointing, and no improvements seem to have been introduced since the late war.

General.—No one who watched the manoeuvres could help thinking that the Japanese have learnt a lesson from the bad shooting of the Russians which they will have to unlearn when they meet troops who can shoot. Some of the attacks witnessed were perfectly ridiculous and could never have succeeded.

As far as tactics alone were concerned the foreign observer was most impressed by the following points:—apparently perfect staff work, invariable close artillery support, the value of machine guns, and the impossibility of many of the infantry attacks.

Infantry scouts.—Useful information of the movements of the enemy and of his dispositions was sometimes sent back by the vanguard skirmishers, and whenever it was required to search any special locality an officer's patrol, consisting of from three to eight men, was detailed for the purpose. Both officers and men, in attack as well as in defence, were frequently observed climbing houses and trees to gain a good view of the surrounding country. Each company carried a long rope to assist in tree climbing. The Japanese are

wonderfully clever at this, and on several occasions men were seen sitting in trees almost destitute of branches. A position was sometimes disclosed by the fact that some article of equipment was seen amongst the branches glittering in the sun. Bicyclists were never used as scouts, and no bicycles have been officially issued to regiments.

Infantry support to cavalry.—A battalion was always detailed as a support to the independent cavalry, and usually one or two companies were told off to accompany the divisional regiment. The men were lightly equipped, carried no knapsacks, and covered the ground in a remarkable manner. On one occasion two companies of supporting infantry covered 14 miles in three hours.

Infantry formations under fire.—Under long range rifle fire—1,400–2,000 yards—regiments were formed in echelon from the centre or from both flanks, and battalions in lines of company columns. These columns, however, gradually gave way to lines of skirmishers at from one to two paces interval.

Infantry attack.—The normal extension at the commencement of the attack was two paces. Each company extended one section, keeping two sections in support. When a section was sent up in support the existing intervals were filled and the whole was divided up into two sections, the same procedure being adopted when the third section was sent up.

Fire was opened immediately the first sections had extended and before the firing-line had been reinforced by supports. The breadth of the rushes corresponded to the frontage occupied by the whole company. From 400 to 200 yards the men appeared to be far too close together to use their rifles effectively, but doubtless on service casualties would prevent such a state of things. On one occasion 105 men were noticed crowded in on a front of 30 yards.

At the final charge the attackers were merely a mob, sometimes four or five deep, without any sort of formation; the charge was headed by the battalion commander, the regimental commander leading the regiment, all the officers with drawn swords and the men with fixed bayonets. The final charge was invariably met by a counter-charge all along the line.

Infantry never supported each other by covering fire; the Japanese do not believe in this, saying that if it was generally practised companies would hesitate to advance before those detailed to cover them had opened fire, and thus long pauses would ensue. Little or no regard was paid to cover, and not once were men seen entrenching during an

attack. Fire was seldom opened at a longer range than 800 yards; this was, however, perhaps due to the close nature of the country. Rapid fire was invariably used for two or three minutes prior to the charge. Neither snap shooting nor shooting in motion was employed.

Infantry in defence.—The 3rd Division was seen in a defensive position in the neighbourhood of Mibu. The soil was very easy, and the cover adopted was the long continuous trench, without head cover, for men standing. The field artillery regiment was concentrated in the centre, with the machine guns in battery, sunk in pits, on the flanks.

Advanced posts were not usually placed in front of defended positions, it being considered that they are detrimental to the *moral* of the troops, necessitating as they do retirement. Communication trenches, which would have been dug through the young wheat, were shown by cords stretched on the ground, at one end of which was a paper on a peg giving information as to time, tools, men, and details of the work. Men in a defensive position usually took off their knapsacks.

Outposts.—No cavalry, except two or three orderlies, were ever seen in the advanced guards. The double sentry system has been given up almost entirely in favour of the group system. Experience of the late war taught the uselessness of examining posts, and detached posts, commanded either by an officer or non-commissioned officer, have been substituted.

Range-finders.—No range-finders were taken by the infantry, although, according to regulations, there should be one with each company. It was found that, during the late war, in the heat and excitement of action they could not be used with sufficient accuracy. They have therefore been discarded and ranges are judged by eye; and as the infantry seldom shoots at any range beyond 800 yards, judgment by eye is no doubt sufficiently accurate.

Transmission of messages.—Owing to the fact that there is no flag signalling in the Japanese army, orderlies, both mounted and dismounted, were employed in very large numbers. In action there was always a long line of men detached from front to rear for the purpose of communicating orders and messages, thus weakening the fighting units. The messages were usually passed on verbally. It is claimed that the training which this carrying of verbal messages necessitates is most beneficial in improving the memory and in teaching men to take an interest in what is going on around them.

Cavalry.—The strength of the squadrons taking part in the manoeuvres was 5 officers and 126 other ranks, with 117 riding and 8 draught horses.

Cavalry horses.—Nearly half the horses were valers of a very uneven stamp, the remainder being country breds of from 14 to 15 hands high, practically all geldings. The amount of work that the horses accomplished, considering that they were fed only twice a day and carried 16 stone, was astonishing. It was noticed that, during the day, girths were never loosened, nor were the men dismounted to ease their horses. The daily ration of grain was 12 lbs. of barley, but unlimited rice straw was given. At the close of the manoeuvres the horses, though leg weary, were looking very well, no doubt due to the fact that they had had no really fast work, though the hours under the saddle were long.

Cavalry equipment.—The saddles were all of one size, very short in the seat and straight in the flap. Two wallets, two canvas saddle-bags, two shoe-cases, and two blankets were carried on each horse. The girth was single, of plaited string. Mention must be made of the excellent soft leather riding boots worn by the officers. These are easily pulled on and off, are waterproof, as easy for walking as lace boots, and more comfortable. The men carried swords and carbines; the former almost straight, suspended by a single sling from the waist belt, and the latter, sighted up to 2,000 yards, slung over the left shoulder. The distance between the Eastern and Western Armies did not permit of the strategical employment of the independent cavalry, the work of the brigades resolving itself into tactical reconnaissance and protection. The divisional cavalry, after furnishing orderlies, acted under the divisional commander, while during part of the time it was placed under the orders of the officers commanding cavalry brigades.

Cavalry patrols.—Patrols were used very freely both for information and for connection, almost always officers' patrols; thus the subalterns and officer candidates spent most of their time, on manoeuvres, on patrol duty. The accuracy of reports sent in by officers and non-commissioned officers was remarked upon, and two, sometimes three, men were always sent back by different roads with any important message.

Dismounted action.—There was practically no mounted fighting, owing to the nature of the country; reconnaissance and dismounted work were the only features, the latter noticeable for the prominent part played by machine guns. The men were very slow in dismounting, and when doing so there was a great deal of noise and confusion. One man usually held at least six horses, and, on the narrow roads, this

procedure led to great confusion, and much time was taken up in mounting after dismounted action.

Machine guns.—Undoubtedly the great feature of the manoeuvres was the machine gun. The divisional cavalry was not yet equipped with these weapons, but each of the brigaded regiments had four of them. A section of 2 guns consists of an officer, 2 non-commissioned officers and 12 men, 6 pack horses and 15 riding horses. The gun and tripod mounting are fixed on one horse, the former being in a soft leather case. The weight of the gun alone—a modified Hotchkiss—is 70 lbs., or, with the tripod, 100 lbs. The section can move at the gallop for short distances, and come into action in one minute.

The ammunition is carried in clips on boards, 30 rounds on each board, 60 of the latter being packed in a box. Thus 3,600 rounds are carried in the field with each gun. On one occasion a gun fired 17 boards, or 510 rounds, but there were continual slight jams and always a pause as a new board was put in. After firing the 510 rounds in question, the barrel and radiator had become so heated that 10 minutes elapsed before the gun could be placed in the case. The machine guns were always pushed forward in battery as far as possible, and there is no doubt that the presence of these weapons will add enormously to the power and confidence of cavalry in war.

During 19 days' operations the percentage of shoes cast was, approximately, 2·84. The percentage of horses thrown out of work for two days or more was 20; of this number 10 per cent. were from saddle and girth galls, and 8 per cent. from diseases of the digestive organs. The percentage of men incapacitated by more or less serious illness was 1·5, but practically all the cases were the results of accidents.

Artillery.—The artillery regiments were armed with the new quick-firing gun, the calibre of which is 2·87 inches, weight of shell 14·11 lbs., and weight behind the team 1 ton 15 cwt. 1 qr. 12 lbs.

Artillery horses.—There were 20 walers in each battery, the remainder being Japanese horses lacking in bone and substance. The horses were fed entirely on barley and rice straw; they sweated very easily, soon got blown and appeared to be quite unfit for fast work. Most of them were unclipped. Small wooden tallies were tied round the necks of all horses giving the name of the rider and number of his battery, so that should they get away the finder would know at once to what battery they belonged. The horses were only fed twice a day except when they had not finished their morning feed, when it was sometimes given to them at midday. During the day girths were never slackened, and men sat on their

horses for hours without dismounting. At the close of the manœuvres it was noticed that the horses all looked sound and well, due no doubt, as in the cavalry, to the absence of fast work.

Artillery entrenchments.—This work is always carried out very thoroughly by the Japanese artillery. On several occasions guns had to be entrenched in a defensive position before daylight; the procedure adopted was to peg out the positions for the guns the evening before, and to bring the guns up by hand or with teams. A hole, 3 feet 3 inches deep and 3 feet 3 inches square, was dug on each side of the trail, the earth excavated being thrown up to form a parapet about 1 foot high in front of each hole. No parapet was built in front of the gun, the shield being considered sufficient protection. The work was done at night by the aid of large metal lamps, shaped like carriage lamps, and therefore, if held with the back facing the enemy, giving no light in that direction. These lamps were carried in the limbers. On another occasion a battery was noticed entrenched behind long grass; great pains had been taken to cut channels so that each layer could see over the sights.

Observation.—One of the features of the work of the artillery officers was the close and clever attention which they gave to the movements of the enemy. Two men were employed by some batteries in this duty, and nothing seemed to escape them. Trees are largely used for purposes of observation. The adjutant constantly acted as lookout man, and the probationary officers were used for the same purpose. When trees are not available battery and battalion commanders use ladders, but these have the disadvantage of disclosing the position of the guns.

Artillery reconnaissance.—Another strong point was the reconnaissance of positions. When the regiment is about to come into position the colonel, adjutant, and one other officer ride forward, each going in a different direction. Having reconnoitred they report to the colonel, who then decides on the position to be taken up. A similar procedure is followed in the case of the battalion. When the position to be taken up had been decided upon by the divisional commander, the colonel and his adjutant rode forward to reconnoitre, the battalion and battery commanders were then sent for, and the colonel divided up the position amongst the battalion commanders, who, in turn, assigned positions to their captains. In the reconnaissance every detail was gone into, the approaches and bridges being closely examined. On the march, when a commander does not know the road, he sends out a patrol whose duty it is to inquire which is the best and quickest route and to mark all the turns, either by breaking

branches or by putting up pieces of paper, marked with the number of the battery, where the commander can see them.

Indirect fire.—Owing to the flat nature of the country the artillery never took up a position behind rising ground; battalions, however, had constantly to come into action covered by the mulberry bushes, when the batteries used the 6-foot aiming post recently issued.

Artillery concentration.—On no occasion was a battery of field artillery seen in action alone, artillery was always concentrated by brigades, regiments or battalions; howitzer batteries were seen acting alone, however, but there is no place in the Japanese army for a field battery acting singly.

Intervals.—No attention seemed to be paid to the keeping of correct intervals when in action. It was often noticed that, when there was no necessity for it, guns were needlessly huddled together; on one occasion nine guns were seen on a total frontage of only 80 yards, and on another day five limbers had a frontage of only 27 yards, and three guns only 12 yards. There appeared to be no rule laid down as to the intervals between wagons and limbers, which are supposed to be placed in accordance with the formation of the ground.

Artillery support to infantry attack.—One of the fundamental principles of the handling of artillery is that, in the infantry attack, guns must be pushed forward in support at close range, no matter what may be the cost. An interesting instance of this occurred during the manoeuvres. The infantry had advanced to within 800 yards of the enemy, and could get no further, owing to the fact that the enemy had four machine guns in action. The attacking artillery was in action at a range of 2,000 yards. Two guns were ordered to come up as fast as possible and destroy the machine guns, this order being followed by another ordering up the remainder of the battery. Single guns came up and unlimbered in full view and within close range of the enemy, and must have been destroyed. The divisional general, acknowledged to be one of the best tacticians in the Japanese army, approved of the movement, remarking that, in his opinion, the final infantry attack would often demand a tremendous sacrifice of guns even to obtain, apparently, comparatively little effect in proportion to the sacrifice.

Orderlies.—On some occasions the artillery sent forward orderlies with the infantry.

Driving.—The guns are nearly always brought into action, action right. Theoretically, men are both gunners and drivers, but in reality, once a driver always a driver; notwithstanding this the driving was extraordinarily bad. Constantly guns were run over narrow bridges by hand,

though, given even average driving, such a proceeding would have been unnecessary. The officers, however, appear to have no confidence in their drivers.

Artillery equipment.—Two long aiming posts per subsection were issued just previous to manoeuvres; they are made of wood, 6 feet long and $1\frac{1}{2}$ inches in diameter, with an iron point 6 inches long, from the top of which is an iron stay. The top of one post is painted red and of the other white. The aiming posts usually in use are of metal made up in sections.

The breech mechanism is taken to pieces and cleaned immediately after the cease-fire has been sounded.

All officers and non-commissioned officers are provided with binoculars of the best quality.

In order to raise the telescopic sight above the shield a steel bar is carried in the limber and strapped on to the shield at "prepare for action." This bar is about 12 inches long. At its base is a steel plate on which is a projection similar to that on the sight; this projection slides into the groove on the goniometric sight, and when thus fitted the steel rod is parallel to the shield. On the top is another steel plate in which a groove is cut similar to that in the goniometric sight. The surface of this plate is parallel to the disc of the goniometric sight, so that when the telescopic sight is fitted on to it the position of the latter has not changed with regard to the gun, except that it is about one foot higher. The telescopic sight can be used in conjunction with the goniometric sight just as well in this position as when on the actual disc of the sight. The lengthening bar is particularly useful in long grass or when the gun is firing over a crest, where an extra foot in the height of the eye makes all the difference.

The heavy artillery of the Western Army consisted of one battalion of 15 cm. howitzers, while that of the Eastern Army consisted of a battalion made up of two batteries of 12 cm. howitzers (Krupp, 1904) and one battery of 10.5 cm. guns. The latter gun was drawn by a team of 8 horses and was very mobile, as can be gathered from the fact that the battery trotted past at the Review on the last day, without gunners, as indeed did all the heavy artillery.

Artillery telephones.—The regimental, battalion, and battery commanders each have telephones. The regimental commander has 2,000 yards of wire and communicates with brigade and division headquarters as well as with units of his own command; the battalion commander has also 2,000 yards, and the battery commander 300 yards each. The lines were put on sticks cut on the spot, poles not being carried.

Engineers.—The battalions attached to each division marched out of their permanent stations at the following strength:—16 officers, 554 other ranks, with 21 riding and 37 pack and draught horses. The above figures include the following non-combatants:—2 officers and 16 non-commissioned officers and men.

Pontoon train.—The heavy bridging train attached to the Western Army consisted of 3 officers and 372 non-commissioned officers and men, with 29 riding and 229 draught horses. The corps built a pontoon bridge over the River Kinu on the 17th November. This was made up with the new steel pontoons and was 120 yards long, 14 pontoons for 80 yards of the length being used. The Birago system for the shore ends was used and the bridge was a wonderfully neat piece of work. The whole was completed in 20 hours, 120 men being employed. Of this time three hours were spent on the pontoon portion, the rest of the time being occupied in building ramps and ordinary bridging. The Kinu flows at the rate of one mile an hour, but nearly all the pontoons were resting on the bottom owing to its shallowness.

Bridging train.—The bridging train attached to each division consisted of 5 officers and 146 other ranks, with 19 riding and 85 draught horses.

Telephone.—The telephone section consisted of 2 officers and 43 other ranks, with 22 non-combatants, 6 riding and 14 draught horses. These were only employed at the Grand manoeuvres. Each section carries 10,500 yards of insulated wire on 20 reels of 525 yards each. The transport was two carts for instruments, one cart for reels, one cart for poles and ladders, and one cart for great-coats. The reel was strapped on to the back of a man, who doubled along paying out the wire as he went, another man following him with a forked pole with which he hitched the wire on to trees or the eaves of houses. The instrument was contained in an oblong wooden box, the receiver and transmitter being in one piece. The instrument worked admirably.

Telegraph.—The field telegraph was employed on the Grand manoeuvres, the aerial line being suspended on porcelain insulators, the latter fixed by stout wire twisted round the pole or tree or attached to an iron bracket hammered into the post, tree or house. The line was usually supported from the ordinary telegraph posts or from trees or houses.

Balloons.—There was a fighting and also a signalling balloon corps. The latter was distinguished from the former by having a pennant of three streamers attached, signals being made with three red balls. The transport of the latter consisted of five vehicles, two of which carried 23 pipes filled with gas.

Transport.—The officers' baggage was carried in wooden boxes 27 inches by 10 inches by 13 inches. Each officer was allowed one of these boxes during the Grand manœuvres, but a regimental commander was allowed two of them. The advantages of the allowance of baggage being regulated by measurement and not by weight are obvious.

Medical.—All drinking water was boiled before the men were allowed to drink it; when bivouacking the men boiled their own water in their waterbottles over a charcoal fire. The men themselves speak of unboiled drinking water as poison.

Veterinary.—A divisional veterinary hospital moved by stages after the division, to which horses too ill to move could be sent. The regimental veterinary officers marched with the headquarters of the unit, one chest of medicines and instruments and another of dressings were with the 2nd line transport. The farrier sergeant with each squadron had with him a veterinary wallet. It was noticed that a case of colic was treated with a hypodermic injection of pyrogalpine, which had a great effect on the salivary glands and after a time made the bowels work; the belly was also painted with a mixture of equal parts of terebene, alcohol, and spirits of camphor; the case was kept moving and soon recovered.

No forge was carried, the shoeing was very badly done, and several cases of pricking were noticed. There are five farriers with a squadron, but many of the men also seemed to have a knowledge of shoeing. A rasp is never used, but a great flat knife, and much of the frog is cut away.

It is interesting to note that during the manœuvres the horses lost, on an average, 25 lbs. in weight.

NORWAY.

The manœuvres took place to the west of the River Glonfmen, between the 1st and 7th September; His Majesty the King was present during the entire operations, which were held under the direction of General Ole Hansen, the Commander-in-Chief. M. Michelsen, the Prime Minister, at that time officiating as Minister for War, was present on the last two days of the manœuvres.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Southern Force.

Commander :—Major-General Holterman.

Infantry.—10 battalions.

2 Hotchkiss detachments.

Cavalry.—4 squadrons.

1 Hotchkiss detachment.

$\frac{1}{2}$ company cyclists.

Artillery.—4 batteries.

Engineers.—1 field company.

1 pontoon train.

1 telegraph section.

Northern Force.

Commander :—General Ebbessen.

Infantry.—7 battalions.

1 Hotchkiss detachment.

Cavalry.—3 squadrons.

1 Hotchkiss detachment.

$\frac{1}{2}$ company cyclists.

Artillery.—3 batteries.

Engineers.—1 field company.

1 telegraph section.

Each force was supplied with the necessary services. The total numbers exercised were about 14,000 men and 3,000 horses. Of the above battalions 5 were *Landværn* and one *Caadet*; 38 volunteers from rifle clubs were also included in the total.

COUNTRY.

The country consisted of broken ground, intersected by numerous valleys; the roads were narrow, roughly metalled, and somewhat soft; innumerable small farms consisting of

wooden buildings were scattered about, while copses and small woods abounded. The manœuvre area was thus typical of Norway and lent itself to the fighting of rearguard actions. The crops were, for the most part, still standing.

NATURE OF THE OPERATIONS.

General idea.—The task allotted to the Southern force was to throw back the Northern force advancing from Eidsvold in the north and to take possession of the entrances, to the defiles Veien Minne and the northern portion of Lake Hurdalsjøen.

The Northern force was to proceed rapidly south to stop the advance of the Southern force and to prevent it continuing its march. The Northern cavalry and cyclists were to proceed south as quickly as possible and endeavour to secure all the passages over the river Lerelven, and prepare the bridges for demolition.

NARRATIVE.

2nd September.

Cavalry and cyclists alone took part, the Southern force gaining ground to the north.

3rd September.

The Southern force bridged the river Lerelven and continued its march northwards.

The Northern force advanced south by both banks of the Lerelven.

4th September.

The Southern force continued its advance, while the Northern force began to retire in 2 columns.

5th September.

The Northern force continued its retreat fighting rearguard actions and destroying the bridges over the Lerelven.

6th September.

The Northern force received (imaginary) reinforcements and the Southern force was weakened by one battery and one regiment.

The Northern force assumed the offensive and drove the enemy back.

7th September.

The Southern force made an energetic resistance in the Gardermoen district and the manœuvres terminated at noon with a parade before the King and Queen.

METHOD OF CONDUCTING THE MANŒUVRES.

Although these manœuvres were on a larger scale than any previously held in Norway, they cannot be classed as important when compared with those of other nations. (It must be remembered that the Norwegian army is in a state of reorganization.) The orders, which were given overnight or in the early morning, were clear and concise; but in most of them it was laid down that troops should move to certain points and there await instructions. Apparently the troops reached the required positions at the proper time; most of the subsequent orders were transmitted to the various commanders of units by telephone and telegraph; visual signalling was not much employed. Three motor cars were used by the staff, but the condition of the roads detracted in a great measure from their value.

The umpire staff consisted of about 14 officers under General Klingenberg; their duties were rendered somewhat difficult by reason of the broken country, which impeded both their vision and movements.

REMARKS.

Personnel generally.—The character of the Norwegian is distinctly an independent one, the peasant being somewhat lazy, taking life philosophically and more or less aimlessly; at the same time he is tough, physically strong and hardy. Loyalty and enthusiasm for the new Norwegian flag is evident everywhere.

The men were of good physique, extremely hardy and cheerful. Only 100 men fell out during the week which, having regard to the heavy weight the men have to carry, the bad weather and the state of the roads, speaks for itself and was a cause of congratulation even amongst the Norwegians.

The officers are keen and hard-working, performing their duties seriously, and the interest shown by their King in military details gives them an impetus which works very favourably and should tend to make a military career the popular profession for the young men of the educated classes.

Infantry.—The *Landværn* being older and steadier men than the *Linie* form the backbone of the infantry. Fire-discipline is good and the men aim carefully, probably the result of practice on the miniature ranges which abound in Norway. As the crops were still standing and were avoided by the troops, it was difficult to say what amount of extension would be practised, but the infantry appeared to extend instinctively.

The weight of the kit including the section of tent and pole is 30 kilogrammes (65½ lbs.). The men bore this weight extremely well and did not appear fatigued.

Each company carries a portable telephone with 2 kilometres (1¼ miles) of fine wire.

Cavalry.—Squadrons were about 80 strong and the men appeared to be good riders, but although superior in appearance to the infantry are not smart. Both mounted and dismounted duties were well carried out, though on several occasions cavalry in close order were seen to charge hostile dismounted cavalry.

Carbines are carried slung over the left shoulder and are attached by a small leather strap to the waist belt to keep them steady. (Very similar to the Dutch method, see "Reports on Foreign Manœuvres," 1906, page 154.)

Each squadron is supplied with a portable telephone.

The horses are hardy, but are not groomed according to our ideas. They have plenty of bone, and though small are up to weight. They are fed and kept by their peasant owners when not being used for military purposes. These get a grant of 100 kroner (about 5*l.* 11*s.*) annually per horse and 1 kroner (about 1*s.* 1¼*d.*) daily in addition during the period the horse is being used for military purposes.

Artillery.—The driving seemed good and the guns were driven over the rough ground and difficult country extremely well.

The equipment is not well kept, but great attention is paid to the bore and mechanism of the gun.

The gunners seemed quick at serving the gun, but enough attention was not paid to laying.

Small shelter pits were invariably dug for the detachments and ammunition when in action.

Each battery carries a light telephone equipment.

The horses are small but well up to their work.

Engineers.—Good work was done by the telegraph sections both in laying telephones and field telegraphs, and in connecting the permanent system of telegraphs with the field system.

The pontoon corps erected its pontoon bridge for the first time at manœuvres and the work was done well. The length of the bridge was about 45 yards and it was constructed at the rate of 1 yard in 2 minutes. The equipment consists of galvanized steel pontoons, and appears cumbersome and heavy on the line of march.

Machine guns.—The Hotchkiss gun, of the same calibre as the infantry rifle, is in use. It is furnished with a tripod mounting. Each regiment of infantry and cavalry has a machine gun section of 4 guns.

The infantry gun is carried on a two-wheeled cart drawn by a cōb, and the section has two ammunition carts. The cavalry section consists of 40 horses and 30 men, guns and ammunition being carried on pack horses. Blank ammunition is not fired, but a drum is beaten at manœuvres when the guns are in action.

Bivouacs.—The men bivouacked every night; the tents are of the Piedmont pattern, each man carrying a piece of triangular canvas and a quarter of a pole; 4 of these pieces make a tent for 4 men, being joined together by hooks and eyes. In the winter months, sufficient pieces are connected to make tents for 12, 16, or 20 men, a fire being lighted inside for warmth.

RUMANIA.

The Rumanian Royal manœuvres of 1907 took place in the Dobruja between Constanța and Cerna Voda on the 3rd, 4th, and 5th October, terminating with a grand review at Constanța on the 6th October.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Blue Force.

Commander :—General Culcer.

9th Division :

17th Infantry Brigade (2 regiments, each of 3 battalions).

A brigade of Rifles (2 regiments, each of 2 battalions).

6th Artillery Regiment (4 batteries).

5th Engineer Company.

2nd Calarași (Black Hussar) Brigade :

3 regiments, each of 4 squadrons.

1 battery horse artillery.

A detachment of cyclists.

• Strength about 8,000.

Red Force.

Commander :—General Cica.

3rd Division :

5th Infantry Brigade (2 regiments, each of 3 battalions)

6th Infantry Brigade (2 regiments, each of 3 battalions).

2nd Artillery Regiment (6 batteries).

6th Engineer Company.

Cavalry Division.

1st Roșiori (Red Hussar) Brigade (2 regiments, each of 4 squadrons).

2nd Roșiori Brigade (2 regiments, each of 4 squadrons).

3rd Roșiori Brigade (2 regiments, each of 4 squadrons).

Horse Artillery Brigade (2 batteries).

• Strength about 11,000.

COUNTRY.

The manœuvre area consisted of that portion of the Dobruja which lies between Constanța on the Black Sea and Cerna Voda on the Danube, the actual fighting taking place between Constanța and Medgidia (Constanța to Cerna Voda 34 miles, Constanța to Medgidia 20 miles). The whole of this area is uniform in character. It consists of a series of low rolling hills, the main features running north and south, and none of them attaining a height of more than about 250 feet above sea level. The country is absolutely bare and unenclosed, and is entirely devoid of trees. Scattered here and there lie a few Tartar villages, consisting for the most part of miserable mud hovels of little tactical value. At best it is an ill-watered country, producing somewhat uncertain crops of cereals, but at the time of the manœuvres a drought of five months' duration had reduced the whole neighbourhood to a state very nearly approaching that of a desert. The slightest movement of troops produced a heavy cloud of dust which rose into the air far above them and completely gave away the direction of their march, even though the troops themselves were covered by some feature of the ground.

The area is traversed by a single line of railway, running from Constanța to Cerna Voda, and by a few indifferent roads, all at least six inches deep in dust, but these roads were of comparatively little importance seeing that troops of all arms, and even motor cars, could move across country in every direction, unhindered by obstacles of any sort or kind.

NATURE OF THE OPERATIONS.

The general scheme of the manœuvres was that a Blue invading force had begun to disembark at Constanța, with orders to march on Cerna Voda and gain possession of the bridge over the Danube at that place. The Red force, which was arriving from the left bank of the Danube at Cerna Voda, received orders to advance against the troops which had disembarked at Constanța and to attack them.

Both forces advanced on the 3rd October, but the fighting on that day was confined almost entirely to the cavalry arm, the Blue cavalry brigade being defeated by the Red cavalry division.

On the 4th October the Blue commander took up a defensive position. This was successfully attacked by the Red force which advanced in two columns, the left column being directed to turn the northern flank of the position.

On the 5th October the Blue commander again acted on the defensive, occupying a position about five miles to the east of that of the previous day. This position was attacked, but a strong counter-attack being launched by the Blue

commander at the critical moment, the Red attack was repulsed, and Blue was enabled to assume the offensive. A general advance all along the line was being carried out when the "Cease fire" sounded.

METHOD OF CONDUCTING THE MANŒUVRES.

A considerable amount of additional interest is lent to this year's manœuvres owing to the fact that they were entirely improvised. The original intention was that they should take place in the north of the Dobruja, between Tulcea and Babadagh, but a serious outbreak of typhoid fever at the former place rendered it at the last moment inadvisable to concentrate troops in that vicinity, and a fresh manœuvre area had consequently to be selected.

It was not until the afternoon of the 28th September that the Constanța neighbourhood was decided upon, and thus only four clear days were available before the actual fighting commenced in which to elaborate all the necessary arrangements. In these circumstances it speaks well for the efficiency of the staff that everything went off without a hitch.

It is true that the manœuvre area was traversed by a railway, but it was only a single line and the resources of the country were practically "nil," even the bulk of the water required for the use of the troops having to be transported by rail from Constanța or Cerna Voda.

As a matter of fact there was little if anything which occurred during the manœuvres to betray their improvised character, and so far as could be learnt, the troops were in want of nothing.

Although the ground permitted of the free movement of troops in every direction, a spectator could scarcely avoid gaining the impression that the opposing commanders were not being granted complete liberty of action. On the contrary, it appeared probable that the directing staff were discouraging any operation which would tend to drive either of the opposing forces away from the railway. By this theory alone can the action of the Red commander on the second day be accounted for, when he made his turning movement on the northern flank of the Blue position. The ground was decidedly less favourable for the attack than that on the other flank, and the blow as delivered, even if successful, could not be so decisive as one on the southern flank, which would have driven the Blue force away from the railway, the line of communication with its base at Constanța.

REMARKS.

The three arms combined.—The general impression left by the manœuvres was that the Rumanian army is composed of

good material, but that the training of it leaves something to be desired. The lessons of the Russo-Japanese war did not appear to have been fully grasped. On each day movements were carried out in the open under hostile fire which could scarcely have been successful however gallant the troops, and there seemed to be little or no organized attempt to establish a superiority of fire.

At the same time it must be mentioned that the opinion of those who had witnessed manœuvres in previous years was that a most remarkable advance in the training of the army had been made.

Infantry.—There can be no doubt that the infantry is composed of excellent material. Even if the standard of training and of individual intelligence is not so high as in some other armies, these disadvantages are at any rate to some extent counterbalanced by the hardihood of the men, their remarkable marching power, and their limited requirements in the matter of supplies.

In point of training there is a marked difference between regiments, the rifle battalions being far ahead of the others. This is only natural, seeing that these battalions were entirely composed of permanent troops, while in the remainder of the infantry there were a large number of "schimbul," or semi-permanent troops, and also a small percentage of reservists.

The number of reservists taking part in the manœuvres was smaller than usual owing to the fact that a large number had been called out earlier in the year to assist in the suppression of the peasant risings which occurred in the spring. It was interesting to note that some of the peasants who took part in these risings were called to the colours for the manœuvres and that only twenty of them failed to obey the summons. These twenty were, it was stated, sentenced by court-martial to penal servitude for life, but it was generally considered to be not improbable that before long the Royal prerogative of mercy would be exercised in their favour.

No instances of infantry entrenching themselves in the attack were observed. In the defence the spade was freely, though perhaps not very scientifically, used. The trenches were generally constructed in lengths of about twenty yards, perfectly straight, except that the extremities were slightly thrown back. In most cases they were sited a short distance down the forward slope. In section the trenches were broad and shallow, usually about 4 feet wide by 18 inches deep, and the cover afforded was consequently meagre. No deep trenches were seen, though there would have been ample time to dig them. No special means were adopted for the concealment of the trenches, but no such action was really necessary, seeing that everything was scorched to a brown earth colour, so that freshly turned soil was at a short distance

scarcely distinguishable from the parched remains of what had once been vegetation.

The infantry entrenching tool appeared to have little but its portability to commend it. It is simply a miniature spade, one edge of which forms a saw. The handle is straight without any cross piece or grip. The total length of the implement is estimated at less than 2 feet.

It may be mentioned that regiments still carry their colours in the field, each battalion having in addition a large flag about the size of our regimental colours, bearing the number of the regiment and of the battalion. The assault is invariably carried out with colours flying and bands playing.

Cavalry.—Rumania is not a horse-producing country, nor are the Rumanians a horse-loving people, and it is therefore not to be wondered at that the cavalry should be a rather weak link in the Rumanian army.

It is true the men ride reasonably well, but the condition of the horses, which are at best somewhat undersized, leaves much to be desired. It is the exception and not the rule for a man to dismount when halting even for a considerable time, and again and again during the manoeuvres not only individual men but whole regiments and brigades might be seen remaining mounted quite unnecessarily.

Speaking generally, the cavalry leaders appeared to have little idea of the effect of modern guns and rifles. On the first day of the manoeuvres a whole cavalry division advanced at a walk in close formation across a valley commanded at a range of less than 2,500 yards by a battery of horse artillery, and presenting a target which must have brought joy to the heart of the horse artillery commander. Both on the second and on the third days instances occurred of frontal charges against unbroken infantry. It is true that when thus charging infantry it was effected by several squadrons in succession, and it is possible that eventually one of the rear squadrons might have succeeded in charging home, but at any rate on the second day of the manoeuvres the occasion was not such as to demand the sacrifice of a considerable portion of the cavalry.

Dismounted action by cavalry was but little employed, though not for want of opportunities.

It may perhaps be mentioned that one or two of the higher commanders in the cavalry appeared to be somewhat old for their posts, and to be wanting in that bodily and mental activity which is so essential in a cavalry leader.

As in the infantry, so also in the cavalry, there is a marked difference between the various regiments; as might be expected, the regular "Roşiori" regiments are decidedly superior to the "Calarasi" regiments, which are largely made up of "Schimbul," or semi-permanent, troops.

The cavalry is apparently intended to be used as follows:—

1. To use the Division of "Roşiori" in the capacity of strategical cavalry, who will move, say, 48 hours ahead of the main columns and seek out and destroy the enemy's cavalry. This Division will also act somewhat in a protective capacity, thus apparently endeavouring to combine in itself the duties of both strategical and protective cavalry.
2. To use the "Călarăşi" as the divisional cavalry. The "Călarăşi" number 11 regiments of 4 or 5 squadrons each, while the infantry number 34 regiments of 3 battalions each, besides 9 battalions of rifles. Consequently, if the "Călarăşi" are merely expected to carry out the duties of divisional cavalry, as we understand them, this would appear to be a somewhat unnecessarily large proportion of cavalry to infantry.

If the above are their ideas and intentions, it cannot be said that they were entirely carried out in practice. Allowance, however, must be made for the fact that on one side was a division of "Roşiori" only, and on the other a brigade of "Călarăşi." For instance, at the commencement of operations, the "Roşiori" division sought out the "Călarăşi" brigade, and attacked and drove it back. The whole of the cavalry of both sides was thus acting in its strategical capacity, and none was retained with the infantry divisions.

As regards the employment of cavalry after the main columns were in touch, it may be mentioned that on the second day the "Roşiori" division was kept massed, and, that not in the folds of the ground, but in full view and within artillery range of a height held by the enemy. Subsequently it drove in some detached posts, and about half-an-hour later attacked a position held by the enemy's infantry who were mostly entrenched. After this attack the division was again massed, and a brigade (three regiments) of the enemy's cavalry coming within view, four regiments were sent against it, while two regiments attacked some infantry who were partly entrenched. No reserve was kept in hand.

On the same day the "Călarăşi" brigade was at the commencement kept so far in rear that it could not assist in repulsing the first charge on the Blue infantry. Its commander seemed to lack appreciation of his fire power, and did not appear to realize that by watching his opportunity he might be able, by using his men dismounted, to defeat his enemy in detail. He did not, so far as could be seen, dismount his men at all, but when the enemy's four regiments charged he met them by a counter-charge and was overwhelmed.

The action of the Red commander on the third day in dispersing his cavalry, one regiment on his right, two in the centre to maintain touch between the two attacking columns of infantry, and three on his left, was remarkable. The result was that his three regiments on the left were met and defeated by the Blue cavalry brigade, while the two regiments in the centre were of little or no use. It was suggested that these dispositions were made on purpose to "give the Blue cavalry brigade a chance," as that brigade had previously always been worsted by the Red cavalry division.

With regard to formations, several cavalry officers stated that the general rule was for a Division to attack in three and a brigade in two lines, and that for an attack on cavalry a mass or other close formation was used, and for an attack on infantry, squadrons in close formation, but with intervals between them.

Artillery.—The horse and field artillery are now armed with a thoroughly up-to-date quick-firing gun of Krupp's latest model. Although the tactical handling of the guns appeared on several occasions to be open to criticism, the fire-discipline was uniformly good, and the batteries were evidently sufficiently trained to be able to turn their new weapon to good account.

On some occasions excellent concealed positions were taken up; on others, batteries were brought into action at medium ranges in the open, regardless of the fire of a superior number of hostile guns already in position. The guns were never once entrenched throughout the manoeuvres.

Dispersion of batteries appeared to be the rule, it being quite the exception for even two batteries to be together. The dispersed batteries worked entirely independently; there seemed to be no system of inter-communication, nor of control of fire by any central authority. Signallers and telephones were conspicuous by their absence, except that in a few units a small portable telephone was being tried experimentally, for communication purposes between the observing station and the firing battery. Details of this telephone are not available, but it appeared to be very similar to that in use in our artillery only rather larger and stronger.

The guns are fitted with panoramic sights of a pattern invented by a Rumanian officer. Provided that it is sufficiently durable this sight appears to have a good deal to commend it.

The sight consists of a single prismatic eye-piece with a vertical tube about 12 inches long above it. At the top of this tube is the object glass which can be revolved through an angle of 360 degrees. In addition to this horizontal movement the object glass is capable of being inclined

forwards or backwards through a small angle, and by this means the angle of sight can be measured. An exactly similar instrument mounted on a tripod takes the place of our telescope, director, and stand. The sights are said to have been found most satisfactory; they, of course, render aiming posts entirely superfluous, a fact which conduces to rapidity when firing from concealed positions.

Medical.—A divisional field ambulance accompanied each force, and consisted of five vehicles, namely, two ambulance wagons of ordinary type drawn by 4 horses, two open wagons drawn by 4 country-bred ponies abreast, and one ambulance cart with medical chests and places for at least two men. The last-mentioned had a kind of Cape cart hood which let down front and back.

At the conclusion of the operations only six men were in hospital, a fact which speaks well for the stamina of the troops, especially when the heat, the appalling dust, and the scarcity of water are taken into consideration.

Regimental stretcher-bearers were provided with a convenient form of portable stretcher. When put together it resembled an ordinary stretcher. When taken to pieces it consisted of two light poles, two yoke-shaped wooden end pieces, and a strip of canvas. It was carried by two men, each having one pole and one end piece, and one of them having the canvas in addition. The shape of the end pieces enabled them to fit conveniently on the top of the men's knapsacks, the strip of canvas being first wound round one of them.

Balloons.—A captive balloon was in almost constant use throughout the operations and attracted a considerable amount of attention, as this was the first occasion upon which one had been employed at manœuvres in Rumania.

The balloon was sausage-shaped with an enlargement on the lower side of one end. It was provided with a tail similar to that of a kite. Its cubic contents was 600 cubic metres and it was filled by means of cylinders of compressed hydrogen, each cylinder containing six cubic metres of gas. It was held in position by a cable 1,000 metres in length working on a motor winch.

No difficulty appeared to be experienced with the balloon, although a moderate breeze was blowing at times. An expert stated that it would stand a wind of 45 to 56 miles an hour.

Machine Guns.—There are at present no machine guns in the Rumanian army. During the manœuvres one was made use of which was the private property of an artillery reserve officer who conveyed it from point to point in his own motor car.

This gun, which is of Austrian manufacture but did not appear to possess any special merits, was an object of general interest.

Transport.—Civilian transport was almost exclusively employed. The vehicles were miscellaneous in nature, but were all small and light. They were usually drawn by ponies four abreast. These ponies were uniformly small, about 13.2, and also uniformly poor in condition. The harness was miscellaneous, string entering largely into its composition. In spite, however, of these obvious disabilities the transport always seemed at hand when required.

Bivouacs and Water Supply.—The troops bivouacked each night, utilizing the *tentes d'abri* which they carried with them. As has been already mentioned, both forces held closely to the railway, thereby considerably simplifying the supply arrangements.

The supply of water presented a serious difficulty, but this was overcome by transporting it by rail in tank trucks, a large number of those used for the conveyance of petroleum from the oil fields near Câmpina to the port of Constanța being available.

A large motor water tank, borrowed from the Municipality of Constanța, was also used for the conveyance of water.

Horses.—As has been already stated Rumania is not a horse-producing country, or more strictly speaking such animals as are produced are unfitted for use in the cavalry or artillery, though they are utilized for transport purposes.

The horses for the cavalry are purchased almost exclusively in Hungary and those for the artillery in Russia.

As the average price paid for the cavalry remount is, it is stated, only 20*l.* to 24*l.* it will be understood that the animals obtained do not represent the best class of Hungarian horse. Speaking generally the horses were undersized and in poor condition, and, as one would certainly judge from their appearance, they are reported to be wanting in stamina.

The artillery horses, for which the average price is stated to be 24*l.*, are bigger, generally in better condition, and of greater power of endurance. They are reported to be slow, but appear to be able to drag the guns about without difficulty and with reasonable rapidity.

The country-bred transport ponies have been already alluded to. As their supply is limited, it is probable that in war recourse would be had to oxen, a considerable number of which are in use for agricultural purposes.

Railways.—It is stated that in the flat portion of the country troop trains composed of as many as 60 coaches and wagons are used, thus enabling a cavalry regiment, for instance, to be conveyed in two trains.

Transport wagons were usually loaded crosswise, three on a 17- to 18-foot truck. Eight horses were carried in the ordinary covered truck, four at each end with their heads towards the centre. There are openings in the sides of these trucks near each corner for ventilation, and the sliding doors can be securely fastened by means of a catch and yet leave some 6 inches for further ventilation. They are supposed to carry 36 men, 10 forms being put into each for the men to sit upon.

Despite the great length of train reported to be used no temporary platforms were seen.

RUSSIA.

No manœuvres worthy of the name have been held since those near Kursk in 1902, and the tactical instruction of the troops is now practically confined to exercises in the country adjoining the standing summer camps which are pitched every year in the neighbourhood of the principal garrisons. Here the training is more or less perfunctory and partakes rather of the nature of drill than of manœuvre.

Several of these camps are held annually in each of the great Military Districts, but the following report deals only with those exercises carried out between the 12th and 22nd of August in the vicinity of Krasnoe Syelo, in the St. Petersburg Military District.

TROOPS TAKING PART IN THE OPERATIONS.

1st and 2nd Guard Infantry Divisions.

Volhynian Regiment, of 3rd Guard Infantry Division.

Guard Rifle Brigade.

22nd Infantry Division.

198th Reserve Regiment.

2 Fortress Infantry Battalions.

1st and 2nd Guard Cavalry Divisions.

Emperor's Lancers.

Half of 3rd Guard Artillery Brigade.

37th Artillery Brigade.

8th Mortar Artillery Division.

Total :—58 battalions, 48 squadrons, 94 guns.

All units were much under strength, infantry companies numbering only from 40 to 50 rank and file, whilst squadrons mustered not more than 70 sabres.

COUNTRY.

The very limited extent of country over which the exercises were carried out gave the general impression of a level plain, but was in reality intersected by many broad and shallow valleys, most of which were under cultivation. The more prominent of the intervening ridges were covered with wood and scrub, which afforded facilities for the concealment of troops without unduly delaying their movements.

No rivers, railways or defiles were found within the area of operations, and such fences as existed offered no serious

obstacle, but the bad condition of the cross-country roads and the soft ground impeded all arms, whilst the cavalry were considerably hampered by frequent stretches of marshland.

The villages were mere hamlets, consisting of a few wooden houses, and had no tactical importance.

NATURE OF THE OPERATIONS.

Divisional exercises were held between the 12th and 19th of August in the vicinity of Krasnoe Syelo, and the Grand Exercises, in which two army corps and a cavalry corps took part, between the 20th and 22nd of August in the country immediately west of Ropsha.

The enemy was a marked one throughout, and the schemes were of a very circumscribed and definite nature, affording no scope for strategy or initiative on the part of the higher commanders.

REMARKS.

Concealment.—The most striking feature of the training was the attention paid to the concealment of all troops, and undoubtedly this is regarded as the chief lesson to be learnt from the late war. During the exercises, however, the idea was rather carried to excess, for troops were frequently, and for no apparent reason, marched along ditches or through woods and standing crops, with the result that much time was lost and that the men were needlessly exhausted before coming in contact with the enemy. Too much importance was also given to obtaining cover from view as opposed to cover from fire. On one occasion two small copses in front of a position exercised a fatal attraction to the advancing lines of the attack, for company after company was drawn to them in spite of the fact that a large extent of open ground had just been traversed and that their presence in the copses must therefore be known to the enemy.

Both the Emperor and the Chief of the Staff admitted that this striving after concealment was in danger of being overdone, and that sufficient discrimination was not as yet shown in carrying the principle into effect.

Advanced guards.—The practice of detailing several advanced guards was frequently adopted; for instance, during one of the divisional exercises a force of 20 battalions threw out three advanced guards, each consisting of four battalions; these moved on three parallel roads, the main body of 8 battalions following along the centre road.

The principle of not detaching guns was strictly adhered to, and thus, even a strong advanced guard of four or more battalions was never accompanied by artillery. In one case

a battery was added to the advanced guard when opposition had been encountered, but its detachment was much criticized, as it was held that there was great danger of the batteries of an advancing force being overwhelmed in detail, unless they came into action simultaneously.

The attack. — Attacks on entrenched positions, were practised both during the Divisional and Grand exercises, and in each instance a frontal was combined with an enveloping flank attack. The gap or interval between these two attacks was about 2,000 yards, whether a single Division or two Army Corps were engaged, and as inter-communication between the two forces was not well maintained, one or other delivered its attack in every case either prematurely or too late.

Infantry: Personnel. — The 1st and 2nd Guard Divisions and the 22nd Infantry Division are composed of a magnificent body of men, robust, healthy, and well fed, and though the weather was unfavourable, and the consequent discomfort considerable, they always appeared good-humoured and full of vitality.

Infantry marching. — During the exercises no great distances were covered, and no especial call was made, on the men's power of endurance, but the many stragglers who thronged the various villages during the return march from Krasnoe Syelo to Petersburg, a distance of under 20 miles, showed that march discipline is not of the best. Rifle battalions make a special practice of quick marching, and it is claimed that they can cover $4\frac{2}{3}$ miles in one hour, and can average 4 miles an hour for considerable distances.

Infantry formations in attack. — No definite formation is laid down for the advance to an attack, but that which appeared most general, both for first and second lines, and even for reserves, was company column of sections with the men extended to about three paces interval. This formation was almost invariably adopted, whether or not they were under fire, when the troops deployed or even left the road. As soon as companies came within the zone of rifle fire the advance was made either man by man, or by very small fractions in succession; this often made progress unnecessarily slow and fatiguing to the men, and gave the impression of being a somewhat exaggerated and blind application of the lessons learnt from the war, with but little attempt to apply them intelligently to the circumstances of the existing situation. Though the method of advance thus appeared at times out of keeping with the tactical requirements of the case, the actual execution was good, the men keeping well under cover, and the subordinate leaders exercising admirable control over their commands.

Infantry fire control.—Although it is generally accepted that volley firing is out of date and that independent fire is the more effective, no definite system is as yet insisted on; consequently, some few of the more conservative commanders still adhere to the former universal practice of volley firing, in spite of practical demonstration of its comparative inefficacy in all but a few isolated cases.

Infantry scouts.—The nature of the schemes, coupled with the fact that there were no opposing troops, did not give the scouts a fair opportunity of proving their value. As a rule they were not pushed far enough to the front or flanks, and in two instances this resulted in an attack being launched against a position which had already been evacuated. Scouts get but little instruction in map-reading, and are thus heavily handicapped when working in unknown country.

Infantry communication.—There was no attempt at signalling either with flag or heliograph, and though use was made of the 13 mounted orderlies belonging to each regiment, the chief interest was centred in communication by telephone. The organization of regimental telephone detachments is under consideration, and it is proposed that each shall have sufficient men and material for five stations. At present no instruments are issued, and those in use have been bought out of regimental funds: as these had only been acquired shortly before the divisional exercises commenced, the detachments were imperfectly trained and could not execute even the simplest repairs.

Artillery horses.—The artillery horses were serviceable but of a considerably lighter stamp than those employed in our army, and showed more signs of work, especially in the horse artillery, than did those of the cavalry.

Artillery tactics.—The field artillery tactics appeared to be very sound and well carried out. The batteries were always hidden, and generally used indirect laying. Fire was concentrated but batteries always dispersed. The strong feeling against adding guns to detached forces, so that the whole artillery may be worked together, has already been mentioned; and great importance is attached to getting as many batteries as possible into action before opening fire, which was usually done at a range of between 3,500 and 4,600 yards.

In the attack no attempt was made to get any batteries forward to positions from which they could punish the retreating enemy, whilst the retention of guns with the general reserve was an invariable practice.

The tactics of the horse artillery differed in no way from those of the field artillery, for the same caution was invariably shown, and covered positions were usually taken up. During one field day the horse artillery were noticed to be still

engaging the enemy's guns when they might have turned on a whole cavalry division advancing to the attack across the open.

Artillery equipment.—Each battery has a telephone with 540 yards of line, and a good telescope on a tripod mounting, whilst with each brigade there is said to be a searchlight detachment of 16 men, with 4 horses, the light being worked by a benzine motor.

Guns only were taken out during the exercises, the wagons being left in camp.

Cavalry horses.—The cavalry were well mounted, but the condition of the horses varied in different regiments. It was stated that some units had done more work than others and that the cavalry as a whole had been worked much harder this season than in previous years.

An example of the distances covered in training may be quoted. An officer said that the hardest exercise his regiment had taken part in was a reconnaissance of a large area of country, during which the main body of the regiment had covered 66 miles in 2 days and marched back 17 miles early the next morning, or about 83 miles in 50 hours.

The horses were evidently well cared for, and, generally speaking, were in good working condition, but the weakness of the squadrons allowed of a proportion being left in for rest, and at no time during the operations were the cavalry hard-worked.

Cavalry tactics.—During the first four days the task allotted to the cavalry was the same, viz., to delay the enemy's infantry in order to allow its own army to complete concentration. The tactics employed were purely dismounted fire-tactics, and these were of an uninteresting and unenterprising nature. No attempt was made to surprise the enemy, or to seize tactical points on his flank, but opposition was offered only on his immediate front by the occupation of villages and minor ridges, the cavalry finally retiring on and holding a selected position where the horse artillery had already been placed.

The object of these exercises, which were regarded purely as instructional practice in dismounted action and fire control, was to impress on the cavalry the great delaying power they now possess, and to teach the infantry that the opposition of dismounted cavalry is a factor to be reckoned with.

On the first day of the Grand Exercises, the cavalry were employed in shock tactics against the opposing "marked" cavalry, but the situations were so obviously prearranged and artificial as to have little interest. The advance was made through scrub, on issuing from which squadrons practically halted to reform within striking distance of the enemy, whilst the charge itself was executed on a narrow front, with no attempt at outflanking.

Cavalry scouting.—The practice of entrusting the nearer scouting to a few selected men does not exist, and the smallest patrol sent out consisted of an officer and 12 men. There were no instances of distant scouting.

Cavalry communication.—Patrols and connecting posts were used, but signalling with flag or semaphore was not attempted. A few regiments have purchased telephones out of regimental funds, but as these have only some two miles of line, they are of little practical value except when occupying a position or for outpost duty.

Cavalry machine guns.—Each squadron has two Rexer guns which do not, however, appear to give entire satisfaction, as they are very apt to get out of order, and cannot be traversed, so as to distribute an efficient lateral fire. It is claimed their portability enables them to be pushed forward with the most advanced patrols, but, in spite of this, the general opinion amongst cavalry officers is that the Maxim is a preferable weapon.

Transport.—An experimental motor, drawing two trucks, was under trial. The three vehicles together carry 72 men or a load of 14,500 lbs.

SPAIN.

Experimental Mobilization.

The operations of 1907, which took place near Bóveda in Galicia between 20th and 23rd September, cannot be looked upon as manœuvres, neither was it intended that they should be so regarded.

The object aimed at and effected was the partial mobilization and concentration of two divisions, not on a war footing, but on an increased establishment, and the one field day carried out was quite an afterthought, and arranged solely as a spectacle to satisfy the public.

The operations, which were under the direction of General Martitegui, Chief of the General Staff, gave an opportunity of putting into force the mobilization regulations, of testing certain auxiliary services, of carrying out a large concentration by rail and road, and of feeding a considerable force in a country practically destitute of provisions.

All these were exercises in which the army has little or no practice.

TROOPS TAKING PART IN THE OPERATIONS.

The troops taking part in the operations, namely the entire 13th Division and one brigade of the 12th Division with the divisional cavalry and part of the divisional artillery, were formed into two provisional divisions as under :—

1st Division.

Commander :—Lieutenant-General D. José Barraquer y Roviralta.

1st Brigade.—8th and 54th Regiments.

2nd Brigade.—12th and 37th Regiments.

Divisional troops.

Cavalry.—Galicia Chasseurs, No. 25.

Artillery.—3rd Mountain Artillery Regiment.

Engineers.—A company of the 6th Composite Regiment.

Medical.—An Ambulance Section.

2nd Division.

Commander :—Lieutenant-General D. Alfredo Casellas Carrillo.

1st Brigade.—11th and 42nd Regiments.

2nd Brigade.—3rd and 36th Regiments.

Divisional troops.

Cavalry.—Albuera Chasseurs, No. 16.

Artillery.—A brigade of 3 field batteries of the 6th Regiment.

Engineers.—A company of the 6th Composite Regiment.

Medical.—An Ambulance Section.

The entire first reserve of the infantry concerned was called up, in addition to the men on leave during part of their three years colour service. The proportion answering the call was considered satisfactory, the total percentage of absentees being less than fifteen.

The strength of units on arrival at the place of concentration was as follows:—

	Officers.	Other ranks.	Horses.	Mules.	Guns.
From 1st Captain-Generalcy. (Madrid):—					
Administrative troops - - -	2	71	5	48	—
Directing staff - - -	21	65	52	—	—
Topographical Section - - -	1	13	—	—	—
Radio-telegraphic Section - -	3	24	14	—	—
Cyclists - - -	1	14	—	—	—
Automobilists - - -	1	4	—	—	—
	29	191	71	48	—
From 7th Captain-Generalcy:—					
Headquarters of the 2nd provisional division.	13	31	26	—	—
Administrative troops - - -	1	28	1	26	—
Headquarters of infantry brigade	3	8	6	—	—
3rd Regiment - - -	44	1,002	6	25	—
36th Regiment - - -	44	1,002	6	25	—
6th Artillery Regiment (3 batteries).	14	240	196	—	12
16th Cavalry Regiment - - -	21	274	275	—	—
6th Composite Regiment of Engineers (2 companies sappers and 1 telegraph section).	10	265	15	38	—
	150	2,850	531	114	12
From 8th Captain-Generalcy;—					
Headquarters of the 1st provisional division.	13	31	26	—	—
Headquarters of 3 brigades -	9	24	18	—	—
8th Regiment - - -	44	1,002	6	25	—
54th Regiment - - -	44	1,002	6	25	—
12th Regiment - - -	44	982	6	25	—
37th Regiment - - -	44	982	6	25	—
11th Regiment - - -	44	1,002	6	25	—
42nd Regiment - - -	44	1,002	6	25	—
25th Cavalry Regiment - - -	21	274	275	—	—
3rd Mountain Artillery Regiment (4 batteries).	20	461	41	152	16
	327	6,762	396	302	16
Grand Total - - -	506	9,803	998	464	28

NATURE OF THE OPERATIONS.

Concentration.—The following is a general outline of the concentration :—

The administrative troops for making preliminary arrangements and for pitching camp arrived at Bóveda by rail from Madrid and Valladolid on the 5th September, and were followed on the 12th by the 6th Composite Regiment of Engineers (2 sapper companies and one telegraph section) who proceeded by rail from Valladolid. On the 16th the topographical section, the radio-telegraph section, cyclists, and automobilists arrived by rail from Madrid at Monforte station, and marched to Bóveda camp, 8 miles distant.

The main concentration at Bóveda camp took place on the 21st September, all the troops being moved by rail, with the exception of the 11th and 42nd Infantry Regiments, the 26th Cavalry Regiment, and the 3rd Regiment of Mountain Artillery. The 6th Regiment of Field Artillery was sent in three trains, the 16th Cavalry Regiment and each of the infantry regiments requiring two trains apiece.

The first of the 15 trains conveying troops for the main concentration left Coruña at 4.18 a.m. on the 20th, and the last train arrived at Bóveda at 10.17 p.m. on the 21st.

During these 42 hours, 344 officers, 7,572 men, 573 horses, 148 mules, 12 guns, and 45 wagons were brought to the point of concentration by five lines, viz. :—

Corneš (Santiago)—Vigo—Monforte.

Coruña—Bóveda.

Oviedo—Leon—Bóveda.

Salamanca—Bóveda.

Valladolid—Leon—Bóveda.

All are single lines and the last three meet at Astorga, 100 miles from Bóveda.

Of the troops which joined the camp by route march, the two infantry regiments covered the 32 miles from Lugo in two marches, arriving in the early afternoon of the 21st. The 26th Cavalry Regiment took four marches, and the 3rd Regiment of Mountain Artillery five marches to cover the 93 miles from Coruña.

The concentration was accomplished without a hitch, all units arriving almost to the minute, and the train arrangements, which were, however, made by the railway companies and not by the General Staff, were admirable.

Field Day.—The general idea of the only day's field operations was extremely simple, namely, that an enemy had landed, was in the hills north of Bóveda, and was to be attacked.

This enemy was represented by one battalion, a section of guns, and a troop of cavalry, the remainder of the two

provisional divisions acting together as a portion of the home army. The field day was entirely prearranged, and it was known from the outset that the enemy would be surrounded and destroyed on a certain hill at a certain hour.

REMARKS.

Combined Action.—The lack of practice in combined manœuvres was very evident, there being a marked want of co-operation between the two divisions and also between the various arms. On one occasion, a large hill of great tactical importance which separated the line of march of the two divisions was left unoccupied by both.

Infantry.—The infantry showed that they had been practised with care in the art of *desfilade* for, whenever possible, they kept well under cover on the move. Fire discipline was extremely faulty, and the men scarcely ever adjusted their sights. Entrenching was never attempted, and none of the entrenching tools seen had ever been used.

There was no opportunity of judging the marching power of the infantry, but march discipline was far from good, straggling being very general, and no regular distances being maintained between units.

The spirit of the men throughout was excellent.

Cavalry.—With the exception of carrying out one reconnaissance the cavalry were afforded little opportunity of showing their worth. The majority of the officers are indifferent riders, and many in the higher ranks are far too old for their work. Thus the standard of efficiency is not high, but an improvement should shortly be seen, as the cadets now at Valladolid are being well trained, and are extremely smart and well set-up.

The horses are a fair type for light cavalry, but are much overloaded.

Artillery.—The field artillery have not as yet had time to become familiar with the new Schneider-Canet gun, which was delivered only a few weeks before the commencement of the operations. It was, therefore, natural that fire drill should be faulty, but in addition the positions selected were very old-fashioned, the crest line being invariably chosen.

The mountain artillery were more up to date. They made considerable use of indirect fire, and took up good positions. They have a new goniometer, but this was not seen.

Balloons.—On the day of the "sham fight" an ascent was made by an elongated balloon of German pattern. This same balloon has been in use for two years. On another day a free ascent was made in an ordinary spherical balloon, the private property of a member of the volunteer aeronautical corps.

Wireless telegraphy.—Great expectations were formed of the work which would be done by the radio-telegraphic section, and amongst other duties it was to establish communication with the naval station at Vigo. This it certainly failed to do, and it is very generally supposed that no better success attended any of its less ambitious efforts.

Camp.—The troops are totally unused to camp life, owing to the invariable practice of going into billets, and living in a tent was regarded by most of the men in the light of a joke, instead of being an inseparable part of their summer training. As the camp was laid out and the tents pitched before the arrival of the troops, a good opportunity was lost of affording useful experience to the men, none of whom had ever learnt to pitch a camp.

The sanitary regulations were enforced in a most half-hearted manner, and had the stay in camp been longer, the health of the troops would undoubtedly have suffered considerably.

A theatre and café were installed for the three days as though the force had gone into camp for the whole summer, and the arrangements throughout were far from being in accordance with service conditions.

Field ovens.—Corrugated hemi-cylindrical steel field ovens were used for the field bakeries. They are very heavy and unwieldy. The first batch of bread can be delivered 8 hours after arrival in camp, then fresh batches every 20 minutes till the ovens cool. Each oven bakes 350 rations at a time.

Pack saddlery.—Very little care is taken to ensure pack saddles fitting correctly, or in teaching the men to load them. The saddles used by the mountain brigade, and the tool and ammunition saddles of the infantry were all practically new, and apparently each saddle is considered to be as suitable for one animal as for another. In the mountain brigade, 14 mules out of 20, which were examined, had sore backs after a march of four days. This was partly due to the animals being unused to work, but the chief cause was undoubtedly the bad fit of the saddles. This state of affairs is hardly likely to receive the attention it deserves, as the Spaniards are not prone to pay much attention to the sufferings of animals.

Ammunition.—Blank ammunition was carried as follows:—

Infantry Regiments.—One packet, 15 rounds, by each man in the pouch; 16 boxes, each containing 1,500 rounds, on the 8 ammunition mules; and 10 boxes in one of the battalion carts.

Cavalry Regiments.—One packet of 15 rounds per man.

Artillery.—Four rounds per gun.

Each infantry regiment carried 15,000 rounds of ball cartridge in one of the battalion carts, and the 6th Artillery

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Regiment 18 rounds of live shell per gun. This, in the words of the "Instructions for Manœuvres" was done "as a measure of security."

A distinctive mark was placed on each cart and box containing service ammunition; these were locked and the key kept by the unit commander.

The scale of rations and forage was as under:—

Rations.

Per man.— $24\frac{1}{2}$ oz. of bread.

$8\frac{3}{4}$ oz. of fresh meat.

$1\frac{1}{2}$ oz. of rice or 7 oz. of French beans or lentils.

2 oz. of lard or some equivalent fat.

$\frac{1}{2}$ oz. salt.

$\frac{1}{3}$ oz. coffee } in tablets.

$\frac{3}{4}$ oz. sugar }

Per animal.—11 lbs. of barley { for each saddle or
11 lbs. of straw { transport horse and
mule.

$13\frac{1}{4}$ lbs. of barley } for each gun horse
11 lbs. of oats - }
11 lbs. of straw - } or mule.

An excellent ration biscuit, of about a quarter of a pound weight, known as *galleta*, has lately been introduced. These biscuits were issued in lieu of bread on the day of concentration.

EXPERIMENTAL UNIFORM AND EQUIPMENT.

Uniform.—The new uniform on trial resembles almost exactly our own service dress, but the side pockets are put on diagonally. The advantage claimed for this innovation is that the men's cartridges and possessions do not fall out when they lie down to shoot. Any advantage thus gained was, however, found to be counterbalanced by the fact that the contents of a man's pockets were extremely insecure when he lay on his back to rest. With this dress either putties or spat leggings are worn, and a khaki cover for the *ros* (the low shako). The whole appearance is workmanlike.

Water carts.—New water carts, for use by the administrative troops only, were on trial. They are light four-wheeled vehicles, carrying a tank with a capacity of 70 cubic feet, and are intended only for filling camp kettles from one large tap behind.

Ration carts.—Experiments were carried out with two-wheeled ration carts with doors at the back and a folding roof, so that the contents are easily accessible. They are constructed to carry 1,000 rations of groceries and preserved meat.

S W E D E N.

The manœuvres, in which the fleet co-operated, took place on the west coast of Sweden between Gothenburg and Uddevalla between the 16th and 24th September.

The foreign officers were invited to witness only the last two days of the manœuvres, during which the operations were confined to the land.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

3rd Division.—Major-General Nordenskjöld.

5th Brigade (8 battalions).

6th Brigade (6½ battalions).

3rd Hussars.

2nd Artillery Regiment (9 batteries).

1-10 cm. howitzer division (2 batteries).

1 Engineer Company.

Blue Force.

1st Division.—Major-General Matern.

1st Brigade (6 battalions).

2nd Brigade (6 battalions).

7th Hussars.

3rd Artillery Regiment (9 batteries).

1 machine gun battery.

1 Engineer Company.

In addition to the above each force had its field telegraph detachment, medical company, intendance, ammunition columns, train, and lines of communication troops.

The total numbers in the field were 736 officers, 20,596 other ranks.

Navy.

The naval strength was as follows :—

Red :—

6 1st class armoured cruisers.

1 torpedo cruiser.

4 torpedo boats.

Blue :—

2-2nd class armoured cruisers.

1 torpedo cruiser.

8 torpedo boats.

COUNTRY.

The theatre of operations presented a marked contrast to that of last year's manœuvres and somewhat resembles the hilly district in the north of Cape Colony. Rocky kopjes abound and the country is everywhere intersected by stony ridges, largely covered with woods. Between the hills lie tracts of cultivation, and occasional small farms. Roads are few and movement off them difficult for mounted troops and vehicles. Streams are frequent and, lying generally in deep beds, form considerable obstacles to movement. The country is sparsely populated, and but little shelter was available for the troops, who invariably bivouacked throughout the manœuvres.

The choice of such country, rich in opportunities for tactical achievements and most instructive by reason of its novelty to both troops and leaders, did credit to the Swedish General Staff.

NATURE OF THE OPERATIONS.

The scheme was as follows :—

"An invading force (Red), supposed to have disembarked on the coast near Grebbestad some 37 miles north-west of Uddevalla, has advanced south and seized the latter place. The aim of the Red Commander is to seize Gothenburg and the line of River Gota."

A detachment of Red was actually to land where it could on the coast.

"The defending force (Blue) which has concentrated at Gothenburg and marched north receives orders to protect that place, and to endeavour to prevent the enemy seizing the line of the Gota."

Red had a great superiority at sea, but during the early operations the Blue fleet was supposed to be in Hallse Fjord, protected by mines laid in the narrows.

NARRATIVE.

16th September to 21st September.

The Red detachment mentioned above, consisting of troops of all arms, after two nights at sea effected a surprise landing on Orust Island, forced the passage of the Hake Fjord and joined hands with the main Red force marching south from Uddevalla. Blue fought delaying actions.

22nd September.

Sunday. Rest day, naval review, and criticism of the manœuvres.

23rd September.

Under cover of his rearguard Blue took up a strong position across the Gothenburg road and railway. Red attacked and Blue delivered a counter-attack from his right flank.

24th September.

Blue still fell back and a manœuvre similar to that of the 23rd was repeated, the counter-attack, however, being launched from the other flank.

METHOD OF CONDUCTING THE MANŒUVRES.

The Crown Prince acted as Director of the Manœuvres and had Major General Bildt, Chief of the General Staff, as his assistant. The Minister of War was also present.

The umpire staff numbered 36, an increase of 12 on the figures of last year, when the number proved inadequate.

Leaving out of consideration the naval portion of the scheme, the manœuvres were well conceived and instructive. The Directing Staff found no occasion for serious interference. Commanders were given a very free hand, and they were unfettered by questions of geographical limits or accommodation. The scheme guaranteed the two forces meeting and fighting.

The result was most realistic. The attack was allowed to develop thoroughly and in accordance with probability; and fighting went on all day and sometimes far into the night.

It may be mentioned that arrangements for the manœuvres had to be somewhat modified owing to the lateness of the harvest, and that even during the operations there was considerable standing corn which, while affording cover to the troops, did not hinder movements.

No intoxicating liquors were allowed, a rule which was enforced even at the Crown Prince's table.

A criticism of the manœuvres was held on Sunday the 22nd, to which the foreign officers were not invited, and a printed confidential criticism was issued at the close of operations.

REMARKS.

Staff.—Staff work was good and there appeared to be no hitches in the programme of events.

All ranks throw themselves into their work with a concentration that seems to be part of the Swedish character.

Tactics.—Three forms of advance were practised. That of successive lines, of alternate rushes by sections or half-sections, and of reinforcing by single men. The last named method, called *afterhand* (gradually), was used when under heavy

fire, section leaders going forward and selecting the position, and the remainder gradually forming on them. The men are instructed to advance singly in a zig-zag fashion. No assault was seen. Fire discipline seemed excellent.

Entrenching was scarcely practised at all owing to the rocky nature of the ground. When exposed to artillery fire, the men were made to kneel with their heads on the ground thus covering themselves with their packs.

Small red and white flags were carried by each company and displayed by order of the umpire, if the company was adjudged to have suffered severe loss.

The method of conducting the counter-attack was interesting. On the afternoon of the 23rd the attacking (Red) general had pressed rapidly on to the position, either because he expected still to find merely a rearguard confronting him, or because he was anxious to turn the enemy out of his position in the short time that daylight allowed. General Matern, the defender, encouraged this and made a local counter-attack with one company only, thus further drawing the attack on. At the same time he quickly and quietly brought up the 6 battalions and the machine guns, which formed his reserve, from behind his right to a position in front of it, but still under cover. The attack, however, was still not fully involved in front of the position when waning light decided General Matern to launch the counter-attack. The formation was two columns of 2 battalions each with 2 battalions in reserve.

The machine gun battery followed the right column and did good work. The attack struck the enemy in flank, and Red had to put in his last reserve to maintain his line. All guns on both sides co-operated, most of the batteries using rapid fire from covered positions. As the light was failing and the opposing lines were close together and somewhat involved, it is doubtful whether such indirect fire would have given satisfactory results in war.

The Crown Prince who stood between the opposing lines gave a decision at dusk that Red had been reinforced by two imaginary battalions and that Blue must again fall back, leaving the enemy in possession of the position.

Many men who had been fighting in the hills lost their units and some were out all night subsisting on their emergency rations, thus adding to the realism of the operations.

Personnel.—The Swedish soldier averages 5 feet 6 inches in height at 20 years of age, and is thus probably taller than the soldiers of any other army in Europe. He has a good physique, intelligence and individuality, and all ranks display marked aptitude for playing at war.

Infantry.—Each man carried 100 rounds of ammunition in detachable pouches on the waistbelt, each pouch holding two clips (10 rounds). The average expenditure throughout the manoeuvres was said to be about 100 rounds. More ammunition was issued when required.

The blank ammunition has wooden bullets.

Boots of three classes were seen. Two of these, the long lace ankle boot, coming halfway up the leg, and the loose high Wellington boot, are the government issue. Men can select whichever they like, the reason for this being that in certain districts nothing but the high boot is worn. The 3rd category includes every sort of boot the private property of the men which they are allowed to wear if passed as serviceable.

Uniform.—Of the two types of knapsack the German one seemed to ride much the better. The other is sack-shaped, hangs too low and looks most uncomfortable. The new uniform has not yet been issued, but it was worn experimentally by a certain number of men. It merged excellently with the granite of the rocks. It is of "field grey" (Lovat blue) with a large badge on the arm to denote the rank, number of regiment, &c., to which the man belongs. The hat to match is of slouch pattern; a blue and yellow girdle, and a *pompon* for the hat are also issued. The uniform is serviceable and fairly smart, but not good enough for officers and permanent staff who wear uniform always. The question of these two classes retaining a second and smarter uniform is under consideration.

The general staff retain their neat uniform of dark blue with yellow facings.

Cavalry.—There was little opportunity of watching the work of the cavalry. They were seldom given a definite mission, their work being generally limited to reconnaissance. The rocky wooded country was also most unfavourable for them.

Artillery.—Contrary to the statement in last year's manoeuvre report, the re-armament of the artillery is still incomplete, and a few 8-cm. guns took part in the manoeuvres. It is anticipated that the issue of the new guns (about one third of which are being made by Krupp and two thirds in Sweden) will be completed during the current year.

Only indirect fire was used throughout the two days' operations, even when supporting and repelling infantry attacks and counter-attacks.

The positions taken up were generally just behind the crest line, so that the flash could be seen. The powder used was smokeless. No attempt was made to run the guns up when firing at the close infantry attack. Positions were

difficult to find and the guns were often crowded together, one battery being seen with intervals of about five paces between each subdivision. The wagons of the field artillery are invariably brought up beside the gun, and ammunition trays (each of which holds 4 rounds) are deposited by the gun. Owing to the difficult nature of the ground no entrenchments were made, but guns were sometimes concealed by branches. The fire discipline is modelled upon the French system. The fire of one group of three batteries which was observed in action was entirely directed by the group commander, who established an observing station between two of the batteries. The battery commanders sometimes stood in positions where they could not see the target. The telephone was not used for conveying orders, which were passed by semaphore by means of a simple code.

A similar method to that used in other countries of indicating artillery targets at manœuvres was employed. Each group of artillery carried triangular screens of coloured canvas on poles. The triangle has a side of about 3 feet, and the pole is about 10 feet long.

Two of these screens were placed in front of the artillery, the colour displayed indicating the target aimed at. Thus: infantry two red screens, cavalry one red and one white, artillery two white, &c.

A novelty, however, was presented in the fact that the direction of the particular target was marked by the alignment of the screens on it, this arrangement assisting much the work of the umpires.

The draught-horses of the artillery were all hired and were as a whole too young and too light for the work, but were surprisingly active. The harness was indifferent. A jointed adjustable collar is used which looked as if it pinched. Saddles are used on the off-wheelers only.

Difficulty was experienced in assisting the teams up steep places owing to the absence of drag-washers with eyes for drag-ropes.

As in France, the wagon precedes the gun in column of route.

Engineers.—Every engineer carries a full-size entrenching tool or axe. Each company also has 12 saws (rolled up) and 12 drills.

A good pontoon bridge, about 180 yards long and 12 feet wide, over which troops of all arms passed, was thrown across the river Gota at Kungel. The bridge had to be opened several times a day to let boats through. The stream was strong and the bottom rocky. A sapper with a boat-hook stood at each end of every boat during the passage of troops.

Machine guns.—The Hotchkiss gun of 5·5-mm., which takes the rifle cartridge, is at present in use. It has a tripod mounting and is carried on a light two-wheeled cart. Each gun has an ammunition cart.

The battery consists of 6 guns and 6 ammunition carts. The gun is carried into action stretcher-wise by two men by means of handles and web straps over the shoulders. The inclination seems to be to use these machine guns as artillery, and on the 24th a battery of them was observed in action on the top of a high hill from whence their fire could have had little effect. They were, however, well handled in the counter-attack on the 23rd. The organization of machine guns is as yet not determined, but it is proposed to give one battery to each Division.

Medical.—The medical arrangements for manœuvres seemed very complete.

Stretcher bearers are organized in companies, one with each regiment. They carry no kit or arms. One man carries the stretcher, a second the poles for it. The stretchers themselves are very cumbersome and seem too heavy.

Dressing stations were established and the proper medical arrangements were carried out in detail. Medical umpires sent away from the firing line men supposed to be wounded. These had a printed label affixed to the shoulder strap, pink for slight, white for severe wounds. One label read as follows:—“*Severe wound* 5 cm. below the navel in the centre of the abdomen, a circular hole of 1·5 cm. diameter.” This man was carried away from the firing line and attended to at the dressing station. Another slightly wounded man with a pink label was observed walking to the dressing station to have his arm dressed. In this manner considerable instruction and interest in the manœuvres for the medical department is ensured.

Each division had its hospital train working in rear of it. The train was made up of third class carriages, with the fixtures removed to make room for beds, and with steel uprights from floor to ceiling, to which are attached rings and straps for taking the beds.

A carriage inspected was a double third class and took 10 beds in each half, 6 on one side and 4 on the other, in double tiers, with a space at the end for dressing arrangements. All the fittings were simple, clean, airy, and obviously inexpensive.

The beds are the same as those used in the field hospitals, so that a bad case can be taken straight into the train. They are of a light iron pattern with folding trestle legs, and are provided with four hooks for suspending them in the carriages, and with two folding iron handles at each end for transportation.

Transport.—The transport horses and drivers and about 50 per cent. of the carts were hired. The horses were weedy and unsteady, but seemed to get through their work. The Government transport cart is four-wheeled and of limber pattern. Most of the country carts were two-wheeled and practically all had two horses.

Orders.—Divisional orders were reproduced by hectograph as required, only those emanating from the Directing Staff being printed. They were short and to the point, and useful abbreviations have been adopted—e.g., K 3 signified 3rd Cavalry Regiment, A 2, 2nd Artillery Regiment. Orders were signed by the Divisional Generals.

Bicycles were used, where possible, to save the mounted orderlies.

Miscellaneous.—It was observed that all small bodies such as patrols, and also stray men and orderlies, gave an account of themselves to any senior or staff officer they might meet, without having to be sent for and questioned. Thus on passing a staff officer on the road a patrol leader would say, "Right flank patrol of the rearguard going in the direction of X." Or a stray man would say, "Farrier Sergeant of the 10th battery, 5th brigade, lost my unit," and so on.

The health of the troops was said to be excellent, and certainly the emptiness of the hospital train, which was seen each day, testified to this. It should also be remembered that the men were soft as, owing to the lateness of the harvest, about two-thirds of them had only had five days' training during the year.

SWITZERLAND.

Grand Manœuvres.

The Grand manœuvres took place this year in the area Fribourg-Moudon-Yverdon-Payerne, to the south-east of Lake Neuchâtel, between the 9th and 11th September.

STRENGTH AND COMPOSITION OF THE OPPOSING FORCES.

Red Force.

1st Army Corps. — Colonel Corps - Commandant von Techtermann.

Army Corps Staff.

Corps troops.

1st Division.

2nd Division.

White Force.

"Manœuvre" Division. — Colonel Divisional-Commandant Will.

Divisional Staff.

5th Brigade.

10th Brigade.

A provisional brigade.

4th Cavalry Brigade.

4th and 5th Regiments Field Artillery and details.

GRAND TOTAL OF TROOPS.

	Personnel.	Horses.	Guns.	Machine Guns.
1st Army Corps	33,870	4,400	72	8
"Manœuvre" Division	20,800	3,050	48	24
Grand Total	54,670	7,450	120	32

COUNTRY.

The manœuvre area is undulating and rises gradually eastwards. The drainage is roughly from south to north and the streams lie in valleys from 200 to 600 feet below the intervening plateaux. As the movements of the troops were

generally from west to east, across the valleys and the general run of the roads, very fatiguing marches constantly up or down hill had to be made. The country is open grass or agricultural land with frequent patches of forest but there are no hedges or minor obstacles. Small villages and farmsteads are numerous and the population is entirely French-speaking. The most important streams are the Thièle, the Broye and the Saane. The latter is a large river the banks of which form cliffs 200 feet in height. The affluents of these three rivers are not serious obstacles in themselves but their banks are often steep and difficult.

NATURE OF THE OPERATIONS.

The manœuvres, as is customary, formed part of the *Repetition* courses of the troops engaged, who previously to the grand manœuvres were progressively exercised in regiments, brigades, and divisions from the 26th August to the 4th September. From the 5th to the 8th September the two divisions of the Army Corps operated against each other, and on the latter date the troops of the "manœuvre" division arrived by train at Fribourg and joined their formation.

On the 9th and 10th September the 1st Army Corps, forming part of the Red army, manœuvred against the provisional division. The year's training was brought to a conclusion on the 11th September, when the 1st Army Corps only was reviewed by the War Minister.

The general idea which held good during both the divisional and corps manœuvres was that a Red army had invaded Switzerland on both banks of the Lake of Geneva and through the Vaudois Jura. A Blue army advanced to meet Red between the Sarine and the Broye.

The commanders of both forces were allowed considerable latitude but the Director of the Manœuvres (Colonel Corps-Commandant Wille) made slight modifications in the situation from time to time.

There is little of interest to record in the actual manœuvring. General actions took place every day and the Red army gradually advanced eastwards.

For the corps manœuvres the two divisions opposed before were united and the whole 1st Army Corps operated from near Romont against the manœuvre division and gradually drove it north-eastward to a position 3 miles north-west of Fribourg.

The most interesting episode in these operations took place during the night of the 9th and 10th September. The Blue division had taken up a defensive position on the evening of the 9th on a line between Matran and Noreaz to the south-west of Fribourg. Here it was elaborately

entrenched and preparations were made by the Red army to attack at daylight. During the night, however, the whole of the Blue division was very quickly withdrawn to a second position east and west of Belfaux. A small rearguard only was left in the abandoned position and this made display enough to completely deceive Red, who moved to the attack only to find that he had no enemy in his front. The advance was resumed in a thick fog and a rather difficult reconnaissance carried out. The direction of advance of Red was changed twice without contact being lost or the advance being delayed or disorganized in the least degree. Finally, about 8.30 a.m., when Blue was located in his entrenched position, the attack was delivered along the whole line simultaneously with accuracy, while an enveloping attack was developed on one flank. Except that the attacking artillery was unaccountably slow in coming into action, the whole of the operations gave proof of good leading, good staff work and good soldierlike qualities on the part of the troops.

On the 11th September, at the review of the 1st Army Corps, the quiet excellence of the arrangements was as noticeable as the creditable appearance of the troops.

METHOD OF CONDUCTING THE OPERATIONS.

The method of conducting the manoeuvres was precisely as last year. The chief points of interest were that the "manoeuvre" division was formed into three brigades as an experiment, and the new quick-firing field artillery appeared for the first time at manoeuvres.

The 1st Army Corps is formed entirely of troops from the French Cantons. The troops are regarded as the worst in Switzerland and it is usual to hear opinions depreciating their discipline, physique, endurance and soldierly qualities generally. However all authorities appear unanimous that this year's manoeuvres show a great improvement. The men were certainly not spared in the least degree and responded well to all the calls made upon them.

REMARKS.

Infantry.—Infantry covering fire was frequently made use of during the attack, and full advantage was taken of the opportunities, so frequent in Switzerland, of employing several tiers of fire to assist an attack across lower ground in front. Volleys are never used.

The spade was much used both in the attack and defence, but not as frequently in the former case as laid down in the regulations. The reason is that the operations are allowed to

develop too rapidly at manoeuvres, and also the desire to lessen the damage done to cultivation.

The absence of unnecessary noise throughout all the operations was a most noticeable feature of the manoeuvres.

As an instance of the power of endurance displayed by the infantry and of the frequency with which the spade was used, the incident quoted above of the withdrawal of the "manoeuvre" division may be cited.

This division had advanced southward from Fribourg early on the morning of the 9th September, and coming in contact with the various columns of the Red army entrenched itself along the whole extent of front.

At about mid-day the position was assaulted, and the "manoeuvre" division was ordered to retire. This retirement was carried out in good order, and firing continued until late in the afternoon, when a second position, about 8 miles in rear, was entrenched.

As above described, this position was abandoned during the night, and as early as 7 a.m. the field fortifications, in the shape of shelter trenches, barricades in villages, and prepared walls, along the final position near Belfaux, were already of considerable strength.

The march discipline and appearance of these troops on the same afternoon, as they moved through Fribourg on their way to the railway station, was excellent, and the entrainment was carried out without noise and in the best order.

Cavalry.—The cavalry were generally concentrated on a flank and given a definite mission, but although many opportunities offered, and on several occasions heavy mist screened their movements, little was accomplished.

The verbal reports brought in by mounted men were intelligently delivered. They always had something useful to report, and seemed to understand exactly what was required of them.

The horsemanship of both officers and men is excellent. They are fearless and smart, and very quiet with their horses, which they never pull about. They have a more sporting-looking seat than the German cavalry, sit well down in their saddles, and seem perfectly at home across country.

A proof of the control they have over their horses is the admirable manner in which all the movements are carried out, in spite of the fact that the only practice they receive is during less than a fortnight once a year.

Artillery.—The general handling of the artillery was decidedly behind the times. It was invariably extremely slow in coming into action, and the infantry action had completely developed before it even appeared. The batteries were not preceded by ground scouts, and no preliminary reconnaissance of the artillery position was made. Little trouble also was

taken to conceal their arrival from view, and batteries were frequently trotted slowly along crest lines and forward slopes, with hostile guns in action against them at less than 2,500 yards range and with infantry often at decisive range.

The common error of batteries needlessly leaving good positions, from which effective fire could be delivered, to advance across the open under close range artillery and infantry fire was very prevalent.

Under such circumstances it is not to be wondered at that guns met with disaster and were seldom effective.

Not a single case of indirect laying is reported. Money has only recently been voted for the supply of telescopic sights, &c.: in fact the whole question of fire tactics is still in the experimental stage.

The new Q.F. guns appeared for the first time at manœuvres, but, except that the guns were fired more rapidly and the drill with the limbers, ammunition supply, &c., adapted to the new equipment, there was nothing to distinguish the fire tactics from those of 10 years ago. New instructions are in preparation but have not as yet been issued, and only a few notes have been added to the Field Artillery Drill of 1905, giving general indications of the principles of action.

Gun pits or epaulments, according to conditions, were as a rule dug for the guns in defence, and when time allowed the work was very thorough and complete; and although the usual devices were resorted to to make them inconspicuous the result was seldom successful, and better value would have been attained by more judicious siting. The men of the batteries did the work, assisted by the pioneers of the $\frac{1}{2}$ battalion of field engineers attached to each division.

The driving was remarkably good for militia artillery and with requisitioned horses. The men seemed fully equal to the many little emergencies of cross-country work, traces were kept taut, and no better proof of the drivers' excellence can be adduced than the appearance of the horses at the termination of the manœuvres, during which they had a great deal of hard marching over very steep country.

It is truly pitiable that with such excellent matériel, drill, driving, and interior economy in the batteries such obsolete tactics should still prevail.

An experimental reflector was used by some of the artillery brigades to indicate to troops and umpires the target aimed at. It is mounted on a tripod about 3 feet high and consists of a powerful acetylene lamp, for use when there is no sun, with a hollow cylinder, about 18 inches long and 1 foot in diameter, fixed on top of it. The interior of the cylinder is divided up by a number of vertical and parallel plates

about one inch apart, extending the whole length of the cylinder, one end of which has a removable cover with a handle. This cover has a concave reflector on its inside surface with a small hole in its centre. The light is flashed on the target by directing the cylinder on the latter by a sighting arrangement through its long axis, while a man holds the cover about six inches in rear of the cylinder and keeps the shadow of the small hole on the sight as in a heliograph. The acetylene lamp was not seen in use, but the sunlight beam was satisfactory. The only apparent defect was that the operator often directed the reflector on troops at which the brigade was not firing and so increased the sphere of action of the guns.

Engineers.—The engineers, who are equipped as infantry with the long rifle but carry a tool in addition, were used almost exclusively as infantry, and the half battalion with the division was kept intact, apparently for this reason.

There was no arrangement of any kind for transporting engineer units rapidly about the field.

A captive balloon of old pattern and "Dragon" type was made use of on two days only of the divisional manoeuvres, but appeared to be too far in rear to be of any real value.

Communication.—The only system of communication between the various arms and units was by messenger. The field telegraph company with the army corps connected up army headquarters with the divisions, but it is said never to link up the brigades or regiments except in defensive positions.

A pigeon section was attached to one of the cavalry regiments. The birds are trained to fly to Thun, Basle, or Lucerne, whence it is intended the information should be distributed by wire.

Cyclists.—Cyclists and motor cyclists were employed on a large scale for the transmission of orders, and a detachment was attached to the headquarters of the army corps and the divisions. They usually worked in parties of three men each.

Motors.—The newly formed volunteer motor corps took part in the manoeuvres for the first time this year. The cars were usually driven by their owners, who received 20 francs (about 16s.) a day and their expenses. They were used by the directing staff and army corps headquarters and were found particularly useful for distributing orders.

In addition 4 Peugeot 24 H.P. motor wagons were attached, for experiment, to the supply service, and were pronounced an unqualified success. They were employed between the supply depôts and the troops, especially in distributing meat, and owing to their speed they were able

to make two and even three trips round the cantonments of a whole division during the afternoon and evening.

Horses.—The cavalry horses produced the usual good impression: this is not to be wondered at when the care that is devoted to purchasing remounts, the price given, and the personal interest a man has in an animal which is practically his own property, are taken into consideration.

The present remounts are nearly all bought abroad (2 per cent. only in Switzerland), about half in Ireland and the other half near Hamburg in North Germany, and all are of practically the same stamp, light middle-weight hunters. The standard of their quality may be judged from the fact that the average purchase price, at between 3 and 3½ years of age, is 48*l.*; and in substance, activity, and manners the horses in the ranks are in all respects the equal of the horses of our regiments at Aldershot.

The men too in the majority of cases have been familiar with horses before joining, so that little instruction in horse-management is required during the recruits' course. They also have the right in case of sickness at all times to take their horses to the nearest veterinary surgeon, who sends in the bill to army head-quarters.

The number of horses of the 1st cavalry brigade sick from all causes during the 13 days' manœuvres, at which they took part, was 55 out of a total strength of 825. The brigade had a great deal of hard cross-country work to do and rested only on the two Sundays which fell within the manœuvre period.

The horses for all the other arms are obtained by requisition, and the price paid at manœuvres is 6*s.* 10*d.* a day. The animals seen at the manœuvres seem well up to their work, and the harness, which is supplied by the military authorities, was in excellent order. Collars are used for draught horses.

Medical.—Over the whole of the manœuvre area a special medical reconnaissance was made by the public health officers and civil physicians, and precautionary measures were taken, whenever the water supply was suspected or infectious disease was present. During the manœuvres themselves no special apparatus was used for purifying water; but suspicious or positively polluted sources of water supply were made known and their use prohibited. Cold tea was exclusively used in the water bottles. No special measures were taken for the disposal of excreta, and the usual trench latrines were used whenever any temporary form of latrine was required.

The medical officers of regimental units were mobilized with their units, and also the ambulances of the 1st and 2nd Divisions, but the Army Corps ambulance was not mobilized. The subordinate ranks of the medical service took part in the manœuvres on a reduced scale, the two oldest classes of the

élite being exempted from attendance. No representatives of voluntary aid societies took part.

No special methods of transport of sick and wounded were employed or tested, and there were no special arrangements for exercising medical units beyond making them conform to the general movements of the troops.

Supply and transport.—Occasionally the communes were called upon to supply the troops with provisions, and in such cases receipts were given which were afterwards redeemed for money, but the usual rule was for the supplies to be drawn from the stock maintained in the government magazines, the aim being to keep the permanent reserve fresh by consuming a portion annually and replacing it by new stock.

The rations issued appeared to be excellent and the men seemed well satisfied both as regards their quality and quantity, except with the biscuit, which broke and crumbled badly and the men pronounced too bulky and tasteless.

The system of distribution was the same as on active service, and all details were well arranged, the personnel being sufficient in numbers, well acquainted with their duties, and working harmoniously with the combatant troops.

No experimental rations were issued, nor was any compressed forage used; this latter is not stored in the Federal magazines.

The interior economy and discipline of the supply units is excellent, and the greatest care is taken of the horses: this was evidenced by the remarkably good condition of the transport at the end of the manoeuvres.

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